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Stakeholder Participation in Sub-Sahara Africa

- A Network Approach -

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Chapter 1.

Introduction

The concept of stakeholder participation has become a critical approach in development policy and is still at the center of contemporary development discourse. In the mid 1960s, policy makers in the US started to question that economic growth would yield social justice in the Third World and development specialists moved from capital-investment growth models to more people-centered approaches. In 1966, Title IX of the Foreign Aid Assistance Act officially recognized the contribution of popular participation amending the existing legislation to support more participatory approaches (Cohen and Uphoff, 1980).

Over the last fifty years, participation has increased in popularity, acquired a wide range of meanings, and promoted a variety of practices.

Under the assumption that an active participation of stakeholders in the policy process leads the way to more democratic and effective governance, participation has become one of the most widely used concepts in development politics (Reed, 2008; Young, 1980; Pretty, 1995).

The merits of participation are manifold and include normative claims like the realization of democratic values or empowering marginalized groups which benefits the democratic society, citizenship, and equity. Stakeholder participation in the decision-making process may increase public trust in decisions and civil society if participatory processes are perceived transparent and consider conflicting claims and views (Richards et al., 2004). Furthermore, it reduces the likelihood of marginalized groups if stakeholders are included in decisions that affect them and an active citizenship can be promoted (Martin and Sherington, 1997). Active participation may foster transparency in the policy process and enables the people to hold the government accountable for its actions.

More pragmatic claims focus on a higher quality of political decisions and increased efficiency implied by participatory processes. The inclusion of relevant stakeholders provides access to grassroots knowledge and may enhance the capacity to meet local needs and priorities (Martin and Sherington, 1997; Reed, 2007). Furthermore, the integration of local and scientific knowledge allows a comprehensive understanding of complex development processes. Including local interests and concerns into the decision-making process increases the likelihood that local needs and priorities are successfully met (Dougill et al., 2006) and may lead to ownership over the process and outcomes (Richards et al., 2004). Ownership of stakeholders over the policies that affect them is one of the key elements in the concept of participation. An active involvement of stakeholders in the decision-making process may foster commitment to the policies and promote ownership of the outcome which increases efficient implementation (Stiglitz, 2002).

Even though stakeholder participation in development policy is not a new concept and remains high on the political agenda, a quantitative evaluation of parti-

cipatory policy processes and a comprehensive policy process framework based on micro-political theories is still missing. Approaches to assess participation remain vague and on a narrative level. Neither a clear concept nor a framework to quantitatively measure participation have been developed yet. While different degrees of participation are described and evaluated based on typologies developed in the literature, it is not clear what beneficial participatory structures actually are, nor how they evolve or how they translate into government performance. Even if we knew which participatory structures are favorable and in which way they impact government performance, we would not know how to achieve the desired level of participation.

In this context, we propose a framework based on social network analysis (SNA) that includes modules of interest group theory to measure stakeholder participation. Incorporating lobbying activities and informational influence into a legislative decision-making model enables us to derive network-based indicators to quantitatively assess the extent of stakeholder participation in policy processes. In particular, the developed indicators enable the assessment of governmental accountability, government capture, and political ownership as a result of stakeholder participation in the policy process. Furthermore, we apply the developed framework empirically. First, we perform a descriptive analysis of participatory policy processes in African countries based on the derived participation indicators and standard measures of quantitative network analysis. Secondly, we review the revealed participation structure in a cross-country comparison in order to detect a possible relationship between the structure indicated by the applied participation indicators and performance. Finally, we test our theoretical framework and construct central theoretical hypothesis on the process of knowledge interaction.

Part I includes a review of the relevant literature and provides the theoretical framework for our analysis. Chapter 2 outlines the concept of participation as well as approaches to evaluate participatory processes in the literature. Chapter 3 describes the theoretical framework in order to provide the environment to derive the network-based indicators of participation. Part II comprises the empirical application of our framework. The design of the elite network survey and the collection of quantitative network data are described in chapter 5 followed by the three country case-studies in chapters 6 to 8. Subsequently, we provide an overview of the central results in a comparative perspective and evaluate the identified participation structures based on the political performance in a crosscountry comparison. Furthermore, we discuss the limits of networks by applying the derived participation-indicators to estimated network data which enables us to comment on the robustness of the empirical results in chapter 9. Finally, we apply quantitative network analysis in the context of the Advocacy Coalition Framework to explicitly investigate the donor-recipient relation in the process of knowledge interaction in chapter 10, before we conclude with a summary and critically assess our approach which provides the environment for further research on participatory policy processes.

Part I. Theoretical Framework

Chapter 2.

Literature Overview on Participatory Processes

A policy shall reflect the concerns of those that are affected by the policy outcome. The concept of participation boils down to the perception that the inclusion of the society in the policy process leads to better policy outcomes if the voice of the people is taken into account. Thus, participation is given if a policy decision reflects the needs and wants of the society or any subgroup thereof. The degree of participation can be high or low and may have direct or indirect effects on the policy outcome. If the society does not engage in the policy process, inefficient policy outcomes are the result. Only if policy instruments are aligned to the needs and concerns of those that are directly affected by the outcome participatory policy-making may foster economic and social development. On the other hand, a very high degree of participation may be inefficient as well if the decision-making process is determined by the society alone and the policy issues to be decided on are complex and of particular importance. Complete participation of the society implies that every citizen has a vote that directly affects a policy decision, regardless of the knowledge about the context and possible outcomes, and may thus lead to imperfect allocations due to uncertainty.

However, policies are not determined by the society. As representatives of the society, only politicians have legislative decision-making power by constitution. Though voter behavior is not the issue of interest in this study, it is worth noting that one form of political participation is the citizen's democratic right to vote. Voting shapes the course of politics and enables the people to hold the government accountable for its actions. We are interested in participation by the society that affects the political decision-making process beyond voting.

If we want to consider the society in the policy process we first have to determine who the society is comprised of and how it can be involved in political decisionmaking.

Participation can either include the citizen (popular participation) or actors who hold a stake in what they participate in (stakeholder participation). Furthermore, participation can take place either at the micro-level (i.e. policy implementation, e.g. community-programs) or at the macro-level (i.e. sector wide participation, e.g. policy formulation), and comprise different issues in environmental, health, or economic development contexts. Popular participation, i.e. the participation of the citizenry, is primarily called for in contexts in which the involvement of the broad society is essential like environmental sustainability, health care, or education. For example, the implementation of sustainable environmental policies is impossible without the participation of the citizens if they do not identify with the decided policy and hence don't commit to its implementation. While popular participation was primarily the approach of choice in implementing policies defined by donor organizations in the poverty reduction strategy (PRS) processes

in the 1990s, more recently the focus shifted towards participation and ownership of the political decision-making process. The call for participation in policy processes considers stakeholders rather than the general public as not every citizen is affected by or influences the decision-making process in particular policy fields. In general, stakeholders are non-state actors who are affected by or can affect a policy decision (Freeman, 1984). Depending on the policy field, stakeholders comprise organizations, constituencies, and collective bodies with a stake in the policy process and may participate in planning, implementation, or monitoring and evaluation.

While this study lays the focus on stakeholder participation rather than popular participation, there is a fluid transition between both concepts. In the next two sections we will provide an overview of the relevant literature on participation. Section 2.1 presents key concepts and typologies of participation before we describe the attempts to assess participatory processes in the literature in section 2.2.

2.1. Key Concepts

Over the time of its development, the concept of participation has continued to embrace a widespread range of meanings and interpretations in the contexts where it has been applied (Lawrence, 2006). As a consequence, typologies of participation have evolved to comprehend the differences between these interpretations and their associated approaches and methods, and to understand the different contexts in which they are applied ideally. Typologies provide a useful starting point to distinguish degrees and classes of participation and can be used a-priori to choose participatory methods based on the desirable outcome or can be applied post-hoc to evaluate and categorize observed participation (Reed, 2008). Most typologies bear implicit normative assumptions indicating that some approaches to participation should be preferred over others.

The first typologies take account of the degree to which stakeholders are engaged. One of the best known is Arnstein's 'ladder of participation' (Arnstein, 1969), who describes a continuum of increasing stakeholder involvement symbolized by eight rungs on a ladder of citizen participation ranging from passive dissemination of information (which she calls 'manipulation' and 'therapy') to active engagement. While 'non-participation' constitutes the two lowest rungs on Arnstein's ladder, she distinguishes the increase in participation into three degrees of 'tokenism' comprised of informing, consultation, and placation, and three degrees of 'citizen power' which includes partnership, delegate power, and finally citizen control at the topmost rung. Various alternative terms have been suggested for the different rungs of the ladder. Pretty (1995) characterizes the different levels of participation equally normative from 'manipulative participation' which includes token representatives without real power to 'self-mobilization'. The two highest levels of participation, i.e. 'interactive participation' and 'self-mobilizations', are characterized by different systems of ownership. 'Interactive participation' is described as a learning process, in which people participate in joint analysis, development of action plans or strengthening institutions. 'Self-mobilization' particularly emphasizes the control over how resources are used, which enables people to participate by taking initiatives independently of external institutions to change systems. Furthermore, self-mobilization may spread if governments and NGOs provide an enabling framework of support.

The metaphor of the ladder has been criticized by some practitioners to imply an ultimate goal of all participation exercises, which proposes a simplistic view of power, suggesting that manipulation can occur at each rung of the ladder (e.g. Abbott, 2013). Yet, different types of engagement are likely to be appropriate in different occasions and circumstances, depending on the objectives and the capacity of stakeholders to influence outcomes (Richards et al., 2004; Tippett et al., 2007). This is taken account of by the 'wheel of participation' which has been supplemented as an alternative metaphor (Davidson, 1998).

Also, different degrees of participation may result from the nature of engagement. Value-based decisions may require higher levels of public involvement than knowledge-based decisions which in return involve specific stakeholders rather than the general public. Different types of public engagement may thus arise as a consequence of communication flows between stakeholders. Rowe and Frewer (2000) characterize the extent of public participation in the decision-making process based on the direction of communication. The lowest level is defined by a one-way flow of information between scientists and the public in a top-down communication process, whereas the highest level of participation is represented by a two-way exchange of information and dialogue on a mutual basis. However, a top-down communication process (the so-called 'deficit model') between experts and the general public is viewed by some scholars as the most suitable approach leading to public acceptance of policies and decisions following as a result of an alignment process (see Rowe and Frewer, 2000). While participation through information sharing might restrict more active participation it fosters transparency and enables the people to hold the government accountable for its actions.

Further typologies concentrate on the theoretical basis (Habermas, 1987), distinguish between normative and pragmatic participation (Beierle, 2002; Thomas, 1993) or account for the objective of participation (Michener, 1998; Okali et al., 1994). White (1996) includes the interest-dimension into the framework of participation and distinguishes and provides examples of four major types of participation, i.e. nominal, instrumental, representative, and transformative. By contrasting the interests in participation from the perspectives of the architects of participation ('top-down') with the participants ('bottom-up'), she points out that stakeholders do not share the same expectations of participation in development projects. The ambiguity of participation, as both concept and practice, leaves scope to entrench existing power relations. The importance of the relative power of outsiders and beneficiaries as a key characteristic in defining participation is underlined by Deshler and Sock (1985), who developed a typology based on a scale which measures the extent of control or power ranging from pseudo-participation to genuine participation. In general, the evaluation of participation is conditioned by the context and those within. Different participants and different purposes require different forms of participation. Who participates is crucial and has been taken into account by Cohen and Uphoff (1980) who not only included different types of participation, but who participates and how. They distinguish the type of participation in regard to decision-making, implementation, benefits, and evaluation. The *who* dimension comprises local residents, local leaders, and government as well as foreign employees. The *how* dimension differentiates between the basis of participation (initiative, inducement), the form of participation (structure, channels), extent of participation (duration), and the effect of participation (empowerment).

However, while these wide range of concepts and typologies of participation provide a guideline to understand different levels of participation it remains vague and leaves little room for assessment beyond anecdotal and narrative evidence. Important issues that impact the level of participation are raised. While it is clear that the capacity of stakeholders to influence outcomes (Richards et al., 2004; Tippett et al., 2007) is crucial, it is not clear how stakeholders achieve the capacity required in a particular context nor what degree of influence is beneficial and by whom? Deshler and Sock (1985) point out that the relative power of outsiders and beneficiaries is a key characteristic in defining participation. But they provide no theoretical framework on how power structures emerge nor on how relative power of stakeholders can be measured. On a theoretical level, the importance of communication and knowledge in stakeholder participation has been pointed out, but take on the simplistic view on the direction of communication flows (Rowe and Frewer, 2000) or relate vaguely to abstract theories, e.g. the theory of communicative action by Habermas (1987). The vagueness of the various concepts and typologies is reflected in the attempts to assess participatory processes in the literature. The next section provides a brief overview of approaches to assess participation. Primarily based on qualitative methods that mirror the vagueness of the concepts of participation they a lack a clear concept of measurement. Nevertheless, they provide insights into the realities encountered in political practice.

2.2. Approaches to assess Participation

When we think about assessing participation we generally have to distinguish between evaluation and quantification of participation. In addition to that, we have to differentiate between development programs and projects on the one hand and development policy on the other. Development projects usually aim at popular participation in communities whereas participatory policy making targets stakeholder participation.

The narratives of the various concepts of participation have sparked primarily qualitative approaches to evaluate participation in line with the developed typologies. Quantitative evidence as well as a theoretical based framework to quantitatively assess participation in policy processes is still absent. This section provides a brief overview of the approaches to assess participation in the literature.

When participatory approaches in development hit mainstream in the 1990s, the rhetoric of international organizations changed. Two participatory methodologies descending from this period are the participatory rapid appraisal (PRA) and participatory poverty assessment (PPA). Much like the concepts of participation or participatory approaches themselves, numerous interpretations and applications of

PRA evolved and make a thorough specification of its content difficult. According to Lucas and Cornwall (2003), PRA 'is a matter of individual and organizational preference'. It may include checklists, interdisciplinary teams, visualization techniques, or data triangulation as means of generating information. Others who aim at transforming attitudes and behavior may instead listen to the needs of the target group and build capacity for responsiveness and empathy (p. 17 Lucas and Cornwall, 2003).

PPAs come in two versions. Designed as a method to include the realities of the poor into poverty analysis and thereby informing policy choices, PPAs have three key elements: field research, policy influence, and country capacity. While 'first generation PPAs' mainly focused on information gathering for research purposes which is considered bad practice, 'second generation PPAs' are designed to account for policy influence and country capacity (Robb, 2002). Based on participatory research methods to include the perspective of the poor, PPAs combine both visual and verbal techniques. During the Poverty Reduction Strategy (PRS) process which explicitly called for the participation of the civil society in adoption and monitoring PPAs have been increasingly applied (see McGee and Norton, 2000).

In the context of rural development projects the assessment of participatory processes has been approached in case-studies.

Based on data collected through qualitative techniques taken from PRA, Michener (1998) analyzes participatory development in Burkina Faso. By examining a case study of a community development project, she relates the pattern of participation observed on different stakeholder levels (i.e. policy, field, community) to common typologies and assesses the degree of participation. Moreover, she is able to reveal complications in the implementation that might challenge participatory development. Obstacles at the field level such as unequal power relations may foster manipulation and dependency. Vested interests on both sides of implementation hinder 'genuine people-centered participation'. The working environment of development assistance is appealing to its employees who have no incentive to threaten their current situation by promoting empowerment and losing control over the project. Communities may in return bargain with the agencies for benefits or refuse to participate for other reasons. Development professionals have to adjust participatory frameworks to take account of the implementation realities (Michener, 1998).

Ahuja et al. (2008) further illustrate the problems arising in the reality of implementation. Based on a case study on participatory policy development in Andhra Pradesh, India, they highlight the challenges arising in a context of multiple actors with conflicting goals and interests which can lead to missed opportunities to learn from stakeholders. Power structures constitute an obstacle to effective communication within the process and may lead to 'agenda-hijack'. Thus, it is important to reflect on the views and interactions of stakeholders and to identify the difficulties in preceding projects that have to be overcome in order to better design implementation-strategies for future processes.

Resnick and Birner (2009) review the role of participation in the formulation of rural and agricultural development strategies. The paper presents case stud-

ies of two national and two regional agricultural and rural development strategies. Semi-structured interviews with relevant stakeholders constitute the main research method. The chosen stakeholders span five major categories: government ministries, research institutes, producer organizations, NGOs, and the private sector. Resnick and Birner (2009) find that while the cases studied do not lack enough participation, the primary issue is transforming the outcomes of participatory processes into policies that could be feasibly implemented. The disconnect between participation and implementation was influenced by political considerations, financial constraints, fundamental differences in opinion among key interest groups, and a lack of communication by governments on policy decisions taken subsequent to stakeholder involvement.

Karl et al. (2002) provide a comprehensive overview of the key principles, benefits, and constraints of participatory processes. She presents ten case-studies of FAO and non-FAO experiences in supporting the rural poor in policy making processes, who otherwise have only limited influence on the policies that affect them when policies are developed at a central level. The study is based on desk research and interviews with project officials. She illustrates important cornerstones of participatory policy making and outlines the most important results of each case-study based on an analytical framework. This includes without limitation the initiator and source of funding, goals and objectives, participants, the process itself as well as the enabling environment, and constraints to success or failure of participatory policy making. One of the key obstacles to participatory policy making relates to power relations. Though successfully implemented, the cases of policy processes in Mali, Kenya, and Mozambique highlight the need of greater accountability and transparency to increase ownership and confirm the importance of capacity building of stakeholders to avoid the emergence of power elites (Mali) and to prevent pressure from powerful socio-economic groups (Mozambique). The experiences in participatory approaches outlined by Karl et al. (2002) were intended to provide assistance for the 'Livelihood Support Programme' (LSP) initiated by the FAO in 2001. The subprogram of 'Participation, Policy and Local Governance' accounts for marginalized groups under the assumption that a more active participation in policy making improves access of the rural poor to assets and services and thereby benefits livelihood and food security.

Similar to the LSP which focuses on participatory policy making, the Comprehensive Africa Agriculture Development Program (CAADP) targets the inclusion of relevant stakeholders in the policy process. In contrast to the LSP which is initiated by the FAO, the CAADP is a continent-wide program which emphasizes country ownership in policy formulation and implementation and excludes an external initiator. In an attempt to understand the potential of the CAADP initiative¹ to influence national agricultural policies, Zimmermann et al. (2009) provide a comprehensive analysis of the key objectives of CAADP. In particular, they evaluate the potential of CAADP for improving agricultural policies in the case countries, i.e. Ghana and Kenya, by evaluating the quality of agricultural

¹Zimmermann et al. (2009) analyze the CAADP policy processes as well as the African Peer Review Mechanism (APRM) policy process. While the APRM process is interesting in itself, we will focus on CAADP

policy processes and the allocation of government expenditure to agriculture.

The study mostly relies on qualitative information and consequently most methods used in data collection and analysis are of qualitative nature. Quantitative information is also used, albeit to a much lesser extent, mainly when reviewing past macro-economic or budget trends. Methods used for gathering information include review of documents, key informant interviews, participants' observation, and network mapping. According to Zimmermann et al. (2009), implementation of the CAADP framework in the case study countries has not led to the desired improvement in participation, ownership, use of evidence and alignment compared to the policy making processes previously in place. Nevertheless, the authors see potential of CAADP to positively influence national agricultural policy making as it is becoming part of the agricultural development discourse at the international level and the ten percent budget-share for the agricultural sector has set a benchmark for countries to demonstrate their commitment.

While the study by Zimmermann et al. (2009) has the drawback that the two case-countries had not yet started to implement the CAADP process and therefore the outcome is delicate to generalize, a CAADP working group on non state actor participation comes to similar results. Randall (2011) critically assess the ability of stakeholders to use the newly created opportunities of participation. Using information gathered by a qualitative stakeholder survey and desk research, they point out that CAADP has not consistently achieved high quality inclusion of non-state actors at national, regional and local levels.

Although these studies provide interesting insights into the difficulties in implementing participatory policy processes, they demonstrate the weakness inherent in current approaches to evaluate participatory processes. Findings based on subjective level are connected with the vague typologies developed in the literature to assess the level of participation. Clear conceptualized methodologies for a quantitative assessment of stakeholder participation are missing. The approaches to evaluate participation are based on qualitative methods or PRA which itself has been criticized for the lack of a commonly defined framework (see Lucas and Cornwall, 2003). While qualitative methods provide valuable insights into difficulties in the implementation process, they are not able to provide a causal relationship. They offer no comprehensive framework to integrate the role of stakeholders in the policy process that goes beyond anecdotal evidence. It remains unclear how particular participation structures determine the policy process or which effect conflicting interests and different levels of power have on the policy outcome. If we want to quantitatively assess participation in the policy-making processes, we have to take the influence of stakeholders exerted in the decision-making process into account.

At a methodological level, numerous theories and frameworks for the analysis of policy-making processes exist. A common denominator of these frameworks are power relations around three inter-locking domains (Sumner and Harpham, 2008, p. 715):

- The policy narrative and discourse
- The policy actors and networks
- The policy making context and institutions.

One policy analysis framework - the Advocacy Coalition Framework (ACF) by Sabatier and Jenkins-Smith (1993) has gained wider attention by political scientists. This framework explicitly identifies beliefs as drivers of policy-making and especially of advocacy coalitions and provides a systematic approach for a stakeholder analysis. A belief system includes implicit theories about how to achieve certain objectives, perceptions about the efficacy of policy instruments, value priorities, and perceptions of important causal relationships. The ACF concept identifies policy actors in a policy subsystem who share a particular set of policy beliefs and act together on the basis of their shared beliefs. A policy subsystem is defined as a field of policy analysis consisting of government, private sector, academia, civil society organizations, and others, who are actively concerned with a policy problem. Actors in the policy subsystem who share a set of normative and causal beliefs can be grouped into an advocacy coalition. A coalition identifies a problem and forms beliefs about the policy instruments that could be used to address the problem.

But the framework provides neither a theoretical model how actors of a policy subsystem agree on a mutually accepted policy decision, nor a theoretical model of belief formation among actors involved in policy-making.

One approach that has been neglected so far in the attempt to assess participatory processes in development policy is social network analysis (SNA). It is widely acknowledged that networks constitute an important channel through which stakeholder organizations are able to influence the policy process and has been studied by several scholars (e.g. Laumann and Knoke, 1987; Knoke et al., 1996; Pappi et al., 1995; Pappi and Henning, 1999; Henning, 2009). However, even though the importance of networks in international development has been acknowledged (see Kuruvilla, 2005; Perkin and Court, 2008), comparable studies of agricultural policy-making in developing countries that explicitly consider the interaction between policy makers and interest groups remain limited (Birner and Resnick, 2010).

Stakeholders involved in the policy process differ in their level of power, interests, and resources. The World Bank argues that 'achieving consensus and reconciling key stakeholder differences (...) may entail risks, such as generating or aggravating conflicts among groups with competing interests and priorities. Dealing with conflict often requires an understanding of the underlying societal interests inhibiting consensus and putting into place mechanisms for dispute resolution and negotiation' (The World Bank, 1996, p. 7). The importance of the interaction between stakeholder organizations which shapes the level and type of participation in development policies is evident and has been tried to capture on a qualitative level through network mapping (e.g. Zimmermann et al., 2009). On a quantitative level, Prell et al. (2009) apply SNA subsequent to a stakeholder analysis in order to shed light on the influence structure based on communication in a participatory process. However, while this study recognizes the advantages of network analysis for the assessment of participation it provides no theoretical framework and merely applies standard measures of quantitative network analysis like degree centrality.

The next chapter provides the theoretical background for the derivation of the network-based participation indicators, i.e. Accountability, Government Capture, and Political Ownership developed in chapter 4.

Chapter 3.

Theoretical Model

If we want to measure in how far stakeholder organizations are involved in the policy process, we need to establish a framework that allows us to capture participation of non-governmental organizations in the political decision-making process. Participation in the policy process implies that relevant stakeholder organizations have political power, i.e. they are able to exert influence on the final policy decision. By constitution only governmental organizations have legislative decision-making power. Hence we have to establish a theoretical framework that explicitly incorporates the influence of non-governmental organizations in political decision making.

Following interest group theory, non-governmental organizations obtain influence in the policy process via two channels: classical lobbying and expert information. The most prominent theoretical approach to incorporate lobbying activities is the model by Grossman and Helpman (1994) who model political exchange between reelection seeking politicians and welfare-seeking interest groups as a menu-auction. Politicians are interested in reelection and grant political favors in exchange for political support by interest groups.

Political support is not the only way via which interest groups are able to get hold of policy decisions. Policy decisions have an impact on the welfare of voters. If a politician chooses a policy that negatively affects a specific segment of society her chance of reelection is diminished. Politicians generally have limited knowledge how certain policy choices turn into outcome and hence form beliefs about the relationship between a policy decision and policy outcome. Based on these policy beliefs they choose a policy that has a direct effect on the welfare of voters which may increase or diminish the chance of reelection. Interest groups on the other hand may hold valuable information how policies impact the welfare of the members they represent (Ball, 1995). When politicians receive these information they update their beliefs and align their policy choices accordingly. Thus, interest groups acquire political influence by providing information that changes the beliefs of powerful actors in line with their own interest.

The fundamental condition of the influence of interest groups by sending political support and expert information is that both mechanisms require access to political decision-makers. This condition is taken into account by applied policy network studies (Laumann and Knoke, 1987; Knoke et al., 1996; Pappi et al., 1995). We incorporate a lobbying module and a belief formation module in our framework that reflect the influence of policy networks on policy decisions. On a theoretical level, we follow Pappi and Henning (1998) who suggest the organization of political exchange in social networks, and Friedkin and Johnsen (1990) who propose a model of belief updating and information exchange in social networks. This enables us to illustrate the influence of non-governmental organizations on

the final policy decisions and the derivation of network-based indicators to measure participation in policy processes.

To illustrate how both influence mechanisms, lobbying and informational influence, operate and how networks determine political influence we denote a set of stakeholder E.

The term 'stakeholder' is not uniquely defined in the literature. We follow Reed et al. (2009) and Freeman (1984) and consider stakeholders as a group of individuals or organizations who are affected by or can affect a decision. Organizations can be involved formally in the policy process by constitution or informally through lobbying and the provision of expert information. Thus, we further distinguish between the subset of political agents and the subset of interest groups.

Political agents comprise the government, i.e. the ministries and the prime minister as members of the cabinet as well as the president as the head of the state and legislative groups. Interest groups comprise many different actors and organizations. Donor organizations, research institutes, and public agencies, as well as private socio-economic interest groups like agribusiness organizations or farmer associations and public interest groups like civil society organizations form the subset of interest groups. These organizations are only informally involved in the political decision-making process.

Furthermore, we distinguish between governmental and non-governmental organizations. The latter comprises interest groups and political parties.

Let $i \in E$ denote a generic element in the set of stakeholders, whereas $G \subset E$ denotes the subset of political agents $g \in G$.

Before we formalize the influence of stakeholders in the policy process in our theoretical framework, we illustrate the legislative decision-making process without considering lobbying and informational influence of non-governmental organization. We rather introduce both influence instruments stepwise to better capture the mechanisms at work. In general, we understand a policy as the result of a decision-making process among politicians who vote over different policy options to reach a specific state of the world. Assuming that interest groups are able to influence this decision-making process informally enables us to illustrate stakeholder participation in the policy process.

The next section describes the decision-making process based on the mean-voter rule by Henning (2000) that reproduces a final policy decision as the result of a voting power distribution among political agents. Following standard theory on interest group influence we provide the rationale of the lobbying and belief formation module subsequently in section 3.2.

3.1. Legislative decision-making

Formally, political agents decide on policies on the basis of constitutional rules. The module of legislative decision-making in our framework is based on the mean voter rule by Henning (2000). This theoretical module corresponds to a Baron-Ferejohn (1989) game extended by the rational cooperative behavior of political agents.

According to the mean voter rule, a final policy decision α is the result of package

deals among political agents that is determined by individual ideal policy positions Y_g and individual political power C_g .

Agent-specific ideal positions correspond to the policy the agents like to implement. Political power results from the probability to succeed in building a winning coalition. Political agents need the support of such a winning coalition in order to vote their ideal position through. The probability to be a member of a coalition depends on constitutional rules and the embeddedness of an actor in the institutional system. Political bargaining corresponds to the competition among agents to form a winning coalition.

Non-cooperative political bargaining would result in uncertain policy choices as it corresponds to a lottery over the heterogeneous ideal policy positions. Agents have an incentive to agree on a cooperative policy formulation ex ante which yields higher pay-offs for each political agent. The mean voter rule is self-enforcing as long as legislators do not discount future gains too much.

The final policy decision is equivalent to the weighted mean of the agents' ideal policy position

$$\alpha = \sum_{g} C_g Y_g \text{ with } \sum_{g} C_g = 1 \tag{3.1}$$

The weight C_g of the ideal position of agent g corresponds to her political power and is determined by political institutions. Technically, C_g corresponds to the ratio of winning coalitions that agent g is a member and the sum of winning coalitions that all other agents are member of. The weight C_g correspond to the classical Coleman-Banzhaf voting power index (Banzhaf, 1965; Coleman, 1971). In general, voting power indices reflecting different power distributions in policy-making can be calculated by defining a threshold of votes to be met for a collective decision and identifying whose vote is compulsory. Basically, both formal as well as informal voting power games can be defined.

Formal voting power games correspond to the ordinary legislative process in a democratic system. This process begins with a bill submitted to the parliament by the government. The responsible committee works on the bill and presents it to the parliament including amendments. Finally, there is a vote on the entire bill on the floor and additional amendments may be submitted. Generally, the agenda setting power within the government lies with the ministry that is responsible for the particular sector policy.

Informal political power distribution relates to internally enforced standards of legislative power. According to Shepsle and Weingast (1987) formal institutional rules are not capable to explain observed power distributions. Furthermore, Bratton (2007) arguments that the rule of law in developing countries is only weakly developed if at all. One major informal institution that influences political life in Africa heavily is "Big Man" presidentialism, i.e. political power is intensely concentrated around the president. This leads to an increase in power of his cabinet (see van de Walle, 2003). These internally enforced standards grant all political power to the cabinet and the president and exclude the final vote on the floor. In summary, the mean voter rule captures the essential effects of political bargain-

In summary, the mean voter rule captures the essential effects of political bargaining as an aggregate of diverse policy positions according to the voting procedure

in parliament. However, it does not explain how political agents build their individual policy positions. This is subject to the next section where we incorporate stepwise the influence of non-governmental organizations in the policy process that shape the final policy decision of a political agent.

3.2. Stakeholder Influence in the Policy Process

To explain the influence of interest groups in the political decision-making process, we consider a political agent who has to decide on a specific policy program. In general, the political agent wants to maximize her political support when she decides on a particular policy to increase the chance of reelection.

A policy decision α has direct consequence on a particular state of the world z that has an impact on the utility and on the welfare of the voters. Technically, the political support of an agent g is determined by a support function, which relates the welfare of a voter with the political support this voter sends to the agent. The relation of a policy α and the current state of the world z is defined through a political technology. This means there is a true relationship between a final policy decision and the resulting policy outcome. Assuming the stakeholder is fully aware of this specific technology, the favored policy decision of this stakeholder results from maximizing her political support function subject to the true political technology.

Political Support and Political Influence

To integrate lobbying activities into a probabilistic voter environment we follow Grossman and Helpman (1996) and define electoral competition as a political game among political agents who seek reelection and interest groups who strive to increase the welfare of the members they represent.

Lobbying is mutual beneficial. Interest groups support the political agent who chooses a policy position that increases the welfare of the members of the interest group. The support by interest groups might be financial as a contribution to the campaign run by the agent or include other activities that increase the reelection probability of the agent like election rallies.

Let C_g be the political power of agent g and let C_i^r be the interest group i's resource available to support agent g. Following the basic idea of political exchange inherent in all lobbying models, lobbying can be considered the exchange of political power C_g for the support-resource C_i^r .

Further, let C_{gi} be the political power of stakeholder i after the exchange with agent g. This implies that the final policy decision of agent g is just the weighted mean of her own ideal position and the ideal policy position of the actor she engaged in the political exchange with. The individual weight of an ideal position is determined by the relative political power of an organization:

$$Y_g^E = \sum_g \frac{C_{gi}}{C_g} Y_i. {3.2}$$

The weight of the policy position of agent g corresponds to the control the agent does not trade for political support, i.e. $C_{gg}^P = C_g^a - \sum_{i \neq g} C_{ig}^P$. The final policy position is determined by the mean voter rule (3.1) with the adapted position (Y_g^E) of agent g as the substitute for her initial policy position (Y_g) .

Pappi and Henning (1999) conceptualize political exchange in networks and define a Walras equilibrium which explicitly includes actor-specific transaction costs of political exchange. In particular they demonstrate that political control held by different organizations in the exchange equilibrium can be derived from a network of actor-specific transfers, $T = [t_{ij}]$, observed in equilibrium. Following Pappi and Henning (1999), we denote the relative interest of agent g in a political resource by Ω_g and her relative interest in political control by $(1 - \Omega_g)$. The result of this exchange process can be computed as an income of power or control of actors i (Pappi and Henning, 1999). Furthermore, following Henning (2009) we include brokerage. Access to powerful legislators is restricted and not all interest groups can approach the legislator directly. Accordingly, interest groups without direct access to the legislator approach other interest groups who may provide access indirectly. In return, lobbying groups take a part of the support resources provided by other lobby groups as a brokerage commission (Henning, 2009).

Let μ_i be the individual broker shares of a stakeholder i and the diagonal matrix with the diagonal elements (μ_i) be μ_{diag} the generalized Pappi-Henning model follows in matrix notation as (Henning, 2009):

$$c^{p} = [I - \mu_{diag}[I - (I - \mu_{diag})T]^{-1}T\Omega_{diag}]^{-1}c^{a}$$
(3.3)

where c^p denotes total power flows, c^a represents the constitutionally determined legislative decision-making power, and Ω_{diag} is the diagonal matrix with diagonal elements Ω_i . In the political equilibrium, the total political control of governmental and non-governmental organizations is then given by $c^p(I - \Omega_{diag})$ accordingly.

The political agent chooses a policy that corresponds to the weighted mean of ideal positions of all actors in the support network where the weight of an actor's ideal position equals the support network multiplier, m_{jg}^s , defined as the jg's element of the matrix $[I - \mu_{diag}[I - (I - \mu_{diag})T]^{-1}T\Omega_{diag}]^{-1}$.

While almost any model that approaches lobbying as political exchange implies that the weights of individual stakeholder organizations reflect their political influence, the influence can actually be derived empirically from an observed political support network in the Pappi-Henning model.

Belief Formation and Political Influence

Until now we assumed the political agents to have perfect knowledge over the political technology that determines the relationship between a policy decision and the resulting outcome for the state of the world z. In reality, political decision-making is characterized by fundamental uncertainty. Politicians have only limited information how policies translate into outcome which affects the welfare of voters and therewith the probability of reelection. This led to the development of theoretical approaches of informational influence on policies (Austen-Smith, 1993;

Ball, 1995).

To illustrate how the provision of expert information influences policy-decisions, and to highlight the role of policy networks in this context, we assume that stake-holders are not aware of the true political technology. For this reason they form beliefs how policies turn into outcome to make rational policy-decisions. To understand how this belief formation process takes place is crucial to understand how information influences policy-decisions.

In essence, belief formation has three key components. The first component is the communication network that provides the environment of informational exchange. Again we denote the defined set of actors that provides information about policy impacts and that constitutes thereby the relevant network, as the country's political elite (E) where i denotes a generic element of E. The political elite comprises political agents g, who collectively decide on the national policy by constitution, and a subset of non-governmental organizations. The non-governmental organizations have no legislative decision-making power, but they are linked with the political agents in the communication network. Whether non-governmental actors are members of such a network relies upon overcoming the collective action problem determined by socio-economic framework conditions (Olson, 1965). It follows, that rarely each actor is able to form ties with influential actors, but that the set of actors whose policy positions influence the final policy decision is restricted. Let T be a binary communication network, where $T_{ij} = 1$ indicates an established communication tie between actor i and actor j. Furthermore, let the subset $E_i = j \in E$, $T_{ij} = 1$ be the neighborhood of actor i where it holds:

$$\sum_{j \in E_i} t_{ij} = 1 \text{ with } t_{ij} = \frac{T_{ij}}{\sum_{j \in E_i} T_{ij}}.$$
 (3.4)

Accordingly, $T = [t_{ij}]$ denotes the communication network where $t_{ij} > 0$ indicates that actor i pays attention to actor j. T is a stochastic matrix, i.e. for each actor the sum of total weights equals 1.

The second component is the initial policy position Y_i^0 of actor i that reflects all exogenous influences except for the influence resulting from communication. Political agents form their policy position by maximizing their individual policy support function. Non-governmental actors, i.e. interest groups, build here a special case. They also maximize a political support function given a specific political technology to develop their initial policy position. However, they do not want to gain votes but want to attract members with their policy position. If they are also not perfectly informed about policy impacts, better information on policy impacts would enable them to lobby more efficiently. In consequence, their number of members and thereby their budget available for providing information in line with an organization's own interests to political agents increases. Hence, information gathering via communication with elite members is rational for them.

The last component determines how individuals form their final policy position. To reflect how actors combine their own position with the position communicated by the elite, our model proposes belief-updating: individuals adapt their policy position Y_i^0 by taking the weighted mean of the neighboring policy positions Y_j^0 where t_{ij} is the weight or trust that actor i puts in actor j's current policy position.

Accordingly, t_{ii} equals the weight that actor i puts on his own initial position or own control (see Jackson, 2005). Friedkin and Johnsen (1997) assume that each actor puts the same weight on her initial policy position. Our generalized model allows actors to have different belief-updating strategies. The relative weight an actor puts on her own and on the initial belief of another stakeholder may vary substantially across actors. For instance, stakeholders who are confident regarding their information on policy impacts may put more weight on their own initial policy position whereas rather uncertain stakeholders may pay more attention to the initial position of others. We do not assume a particular own control exante. Instead we determine the weight an actor puts on the beliefs of other actors empirically.

$$Y_i^* = t_{ii} Y_i^0 + \sum_{j \neq i} t_{ij} Y_j^0$$

$$\Rightarrow Y_i^* = t_{ii} Y_i^0 + (1 - t_{ii}) \sum_j \hat{t}_{ij} Y_j^0 \text{ with } \hat{t}_{ij} = \frac{t_{ij}}{(1 - t_{ii})}$$
(3.5)

 Y_i^* denotes the position of agent i after communication. Own control describes to what extent an actor relies upon own information on policy impacts while forming his final position. As T is row normalized to one, $(1-t_{ii})$ is the aggregated weight for all neighbors' positions on actor i's position. Let γ denote the diagonal matrix with diagonal elements t_{ii} than writing (3.5) in matrix notation results after further rearrangements in:

$$y^* = \left[I - (1 - \gamma)\hat{T}\right]^{-1} \gamma y^0 \tag{3.6}$$

with $M^C = [I - (1 - \gamma)T]^{-1}\gamma$ being the network multiplier matrix which is similar to the Hubbell index (Hubbell, 1965). An element of the multiplier matrix m^c_{ij} defines the field strength of actor j's initial position operating on actor i's final position. If i = j, the element m^c_{ii} of the multiplier matrix M^C equals the weight that an actor i puts on his own initial position. That is the final network multiplier matrix denoted by $M^C = \left[m^c_{ij}\right]_{i,j\in E}$. Note that a network multiplier includes all communication loops among actors, i.e. all direct and all indirect effects of j's initial position on i's position resulting from communication.

For any row stochastic matrix the belief formation process described in (3.6) delivers an unambiguous final policy position y^* as a weighted average of the initial position of all agents before communication y^0 , where the weight of actor j's initial position for actor i's final position just equals the element m_{ij}^c of the multiplier matrix M^C . The belief-updating in equation (3.6) is similar, but still differs from the DeGroot model analyzed by Jackson (2005). In particular, our model includes the DeGroot and the Friedkin model as a special case.

In essence, our theoretical framework is represented by Figure 3.1. The mean voter rule reproduces final policy decisions as the result of a voting power distribution among agents with individual ideal positions Y and is given by the equation in the rectangle in Figure 3.1. Furthermore we integrate a lobbying module and a belief formation module into our framework to enable non-governmental orga-

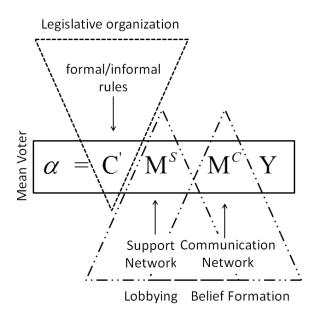


Figure 3.1.: Overview of the Framework

nizations to influence the final policy position (lower triangle in Figure 3.1). In summary, our model considers the policy process as an aggregation mechanism for different policy positions according to voting procedures in parliament and to belief formation and lobbying activities in networks. These voting procedures, either determined by formal or informal institutions, constitute the political power C of an legislator g (upper triangle in Figure 3.1) and determine to what extent final legislation represents an agent's individual preferences.

Now that we established a theoretical framework that explicitly takes the influence of non-governmental organizations on the final policy decision into account we can derive network-based indicators to measure stakeholder participation in the policy process. In particular, we present four indicators in chapter 4 in reference to the literature on participation that enable the assessment of governmental accountability, government capture, political ownership, and political knowledge as a result of stakeholder participation in the policy process.

Chapter 4.

Network-based Indicators of Participatory Policy Processes

In the last chapter we established the theoretical framework that includes non-governmental organizations in the policy process. We described how political agents make decisions in the political arena and that they form beliefs about the relationship between policy decisions and policy outcomes. Stakeholder organizations are able to exert influence on the policy decision through political support and informational influence. We described how political agents form policy beliefs about the relationship between policy decisions and policy outcomes, and that stakeholder organizations are able to exert influence on these beliefs via political support and the provision of expert information. The interaction between political agents and stakeholders takes place in policy networks. As a result of this interaction, stakeholder organizations obtain a share of political control over the policy decisions that affect them. This enables us to derive network-based indicators that capture the essence of participatory policy processes.

The literature on participation emphasizes the ability of stakeholders to hold the government accountable for its actions as a direct consequence of increased transparency in the participatory policy process. Hence, the first indicator to assess participation will be 'Government Accountability'. Our second indicator, 'Government Capture', corresponds to the concept that policy decisions may be biased towards the interests of organized social groups. A central theme in the literature is political ownership. The inclusion of local interests and concerns into the decision-making process reduces implementation costs of policies and increases commitment and political efficiency. Therefore 'Political Ownership' constitutes the third indicator in our assessment of stakeholder participation. A crucial aspect of participation and therewith our fourth indicator of participatory policy processes is 'Knowledge'. Including 'grassroots' knowledge may enhance the capacity to meet local needs and priorities. The integration of local and scientific knowledge increases efficiency and fosters evidence-based policy making.

In general, we apply the theoretical framework described in section 3.2. We focus specifically on the combination of a modified legislative bargaining model with the two influence modules, i.e. political support and informational influence, in a policy elite network. In essence, this aggregation mechanism corresponds to a generalized mean voter decision rule:

$$y^* = \sum_{j} C_j^T \hat{y}_j^0, \tag{4.1}$$

where y^* denotes the final policy decision, C_j^T denotes the total political power and \hat{y}_j^0 denotes the initial preferred policy position of actor j. The total political power results from political influence on powerful political actors:

$$C_j^T = \sum_i m^c_{ij} C_i^L, \tag{4.2}$$

where m^c_{ij} denotes the political influence of actor j on agent i. As demonstrated in section 3.2, m^c_{ij} is the network multiplier derived from the communication network among governmental and non-governmental actors. Accordingly, m_{gg} denotes the weight that a legislator g puts on her own initial position, while C^L_i is the political power of agent i that is derived from the lobbying game, as described in section 3.2. Thus, it holds:

$$C_i^L = \sum_g m_{gi}^S C_g. (4.3)$$

.

As described in section 3.2, m_{gi}^S is the support network multiplier that corresponds to the outflow of legislative power from legislator g to actor i, resulting in the equilibrium of the lobbying game. Hence, the better access an interest group i has to powerful legislators, the more successful are the lobbying activities of this organization. Further, C_g denotes the legislative power of legislator g that is derived from the modified legislative bargaining game, as described in section 3.2. Equations (4.1) to (4.3) constitute the theoretical backbone of our policy process framework, which is illustrated in Figure 3.1.

Based on our theory, the policy process corresponds to an aggregation mechanism of the policy positions of the involved governmental and nongovernmental organizations, where the individual weight of an organization is jointly determined by political communication network structures that determine political influence \overline{m}_{ij} , informal access structures m_{gi}^S that determine lobbying power and constitutional rules that determine legislative decision making power C_g^l . Based on our theoretical framework, the underlying communication and access structures encapsulated in the communication network and the political support network are central components that determine final policy choices. To describe these networks we apply social network analysis tools, including methods for identifying overall network structures (e.g. blockmodel analysis, see Wasserman and Faust (1994)). However, our framework offers network tools that go beyond a pure descriptive analysis. They allow us to draw direct conclusions concerning the impacts of the identified network structures on different aspects that determine governmental performance (i.e., the network multipliers derived in section 3.2). Specifically, we develop the network-based indicators described below to empirically measure different aspects of governmental performance.

4.1. Government Accountability

The successful functioning of any government depends on the ability of citizens to hold politicians and public administrators accountable for their actions. The

existing literature on political accountability describes the machinery of government as a game between a principal (i.e., the public) and an agent (i.e., the politicians or public administrators) in which the former delegates to the latter a given set of instruments to execute certain goals (Adsera et al., 2003). In this game, the principal and the agent may have opposing interests (i.e., even while partially acting based on the interests of their potential electorate, political agents are likely to pursue their own political agenda. For example, political agents may be interested in enriching themselves while in office or political agents' strategies for enhancing the welfare of the public may differ from the desires of the public. Hence, with self-interested political agents, the delegation of decision making and policy implementation responsibilities automatically provides the opportunity for significant inefficiencies and corruption among politicians. One could argue that electoral competition induces governmental incentives for acting in line with society's interests; thus, the high concentration of political power in governmental organizations does not contradict political accountability. Though this argument could be true in general, this reasoning is limited because elections fail to guarantee strong governmental accountability. The citizens' (i.e., 'voters') information concerning governmental policies and their consequences for society's welfare is a factor that impacts the functioning of free and regular democratic elections as an effective mechanism for guaranteeing political accountability. If citizens lack this information, they base their votes on non-policy indicators. In the literature voting behavior in Sub-Saharan Africa has often been described as non policy oriented, with voters that are unaware of politics and rather rely on ethnicity or regional identity when voting. This statement is especially true for Uganda, where non-policy voting motives are the principal determinants of vote choices, particularly within the rural population, whereas policy oriented and retrospective voting is more important in Senegal and Ghana (see Seide (2014)).

Thus, voters are swayed by the relative campaign spending of different parties, which reflects the influence of election advertisements more than high governmental performance (i.e., serving voters' true desires and needs). Hence, in addition to elections, the participation of stakeholder organizations in the political process is a second mechanism for holding public officials accountable. The more domestic stakeholder organizations control governmental actions and policy choices via lobbying and political communications, the more these actions and choices correspond to the desires of society.

We use the sum of the total political power of important non-governmental organizations as a general indicator of government accountability:

$$GA - Total = \sum_{i \neq g} C_i^T \tag{4.4}$$

Moreover, to understand how policy network structures interact with constitutional rules, we use the belief power (GA-Belief) and the lobbying power (GA-Lobby) as additional sub-indicators to comparatively evaluate the extent of political power due to communication and access structures. The higher the values of the accountability indices GA-Total, GA-Belief and GA-Lobby, the higher is thus the participation and the involvement of the respective stakeholder in the policy

process. This indicator can either include an individual non-governmental actor or a group of actors that we are interested in. The application of the indicator for a single actor might yield very small values depending on her standing in the policy networks and the size of the network. Therefore we rather propose the application to a group of actors in general. Moreover, it is recommended to apply these indicators to several groups of stakeholders simultaneously to compare different levels of accountability and hence adequately assess the performance of a particular stakeholder group.

4.2. Government Capture

According to the relevant political economy literature (Bardhan and Mookherjee, 2000), governmental capture corresponds to the concept that governmental political actions and policy choices are biased towards the particular interests of organized social groups at the expense of the general public. Thus, even if the government is fully accountable to its electorate, it might respond asymmetrically to the specific interests of particular social groups. In this context, electoral competition induces governmental capture because some social groups are less informed than others. However, beyond democratic elections, stakeholder participation is a second mechanism for relaying society's interests to public officials. Hence, the determination of the extent to which this mechanism is biased in favor of the particular interests of vested groups is of interest. In order to measure government capture (GC) we follow the set-up proposed by Henning et al. (2016) who imply that a stakeholder system defined by the participation structures of the expert network and the support network is composed of a belief bias, BB, and an interest bias IB. Accordingly, we define government capture as the interest bias of a particular stakeholder organization towards the interest of the general public. Thus, we calculate the weighted distance between the interest in policy issue kstated by stakeholder organization i, θ_{ik} , and the general public approximated by the mean interest of all stakeholder organizations, $\overline{\theta_k}$, weighted with the relative total power of stakeholder i, C_i^T . The sum of these distances over all relevant stakeholder organizations yields the issue-related capture indicator

$$GC_k = \sum_{i} C_i^T (\theta_{ik} - \overline{\theta_k})$$
 (4.5)

which displays the bias towards or against a particular policy issue k. A non-biased policy issue is therefore indicated by $CG_k = 0$ as both very powerful and very weak actors share the same policy interest with the general public. On the other hand, a powerful actor with comparatively low interest in issue k will push the indicator towards a negative value whereas a powerful actor in favor of k will push in the opposite direction. Thus a negative value in GC_k reflects a bias against issue k whereas $GC_k > 0$ indicates an over-representation of the respective policy issue.

In a second step we incorporate a directional parameter to take account of the interests of vested groups in regard of global policy dimension g (i.e. pro-rural, pro-urban, pro-poor, pro-rich). Therefore we construct the dimension specific

index Δ_k^g which assigns each policy issue k a specific direction depending on its nature of favoring either the rural or urban, the poor or the rich population.

$$GC - Total = \sum_{k} \sum_{i} C_{i}^{T} (\theta_{ik} - \overline{\theta_{k}}) \Delta_{k}^{g}$$

$$(4.6)$$

As with the issue-related capture indicator, a positive value of GC-Total implies a bias in favor of policy dimension g whereas a negative value of GC-Total indicates a bias against dimension g. Furthermore, we are able to investigate the impact of particular stakeholder groups on the total capture indicator.

4.3. Ownership

Political ownership corresponds to the concept that a society identifies with a specific policy and is committed to accomplishing the envisaged policy goals. Hence, a lack of ownership corresponds to an incentive problem on the side of the society. Technically, ownership is related to the involvement of national non-governmental organizations in political communication. Political ownership increases citizen compliance with policies, decreasing implementation costs and increasing the effectiveness of the implemented policies. In contrast to governmental accountability, the ability of non-governmental organizations to exert influence on governmental organizations is less important for achieving political ownership. In contrast, even a top-down communication system (i.e., the policy beliefs of the civil society are primarily influenced by governmental organizations) implies political ownership, because the citizens feel involved in policy formulation. Accordingly, all other things being equal, the higher the level of consensus achieved through stakeholder participation, the higher the political ownership of citizens in the decided policies will be. To measure the political ownership implied by stakeholder participation, we define the following political conflict index from the viewpoint of an organization i:

$$CON_i(\gamma^*) = \sqrt{\sum_k \theta_{ik} (\hat{\gamma}_{ik} - \gamma_k^*)^2}$$
(4.7)

where θ_{ik} denotes the interest of actor i in the policy dimension k, $\hat{\gamma}_{ik}$ denotes the ideal position of actor i with respect to dimension k, and γ_k^* is the final policy decision for the dimension k. Drawing on the political exchange model as proposed by Henning and Wald (2000), the final policy decision γ_k^* is determined by agent i's ideal-position regarding dimension k, $\hat{\gamma}_{ik}$, weighted with the agent-specific control identified in the exchange game, C_{ik}^* , over all actors i:

$$\gamma_k^* = \sum_i C_{ik}^* \hat{\gamma}_{ik} \tag{4.8}$$

with

$$C_{ik}^* = \frac{\theta_{ik}}{v_k^*} C_i^T \tag{4.9}$$

and

$$v_k^* = \sum_i \theta_{ik} C_i^T. \tag{4.10}$$

Accordingly, the average political conflict for representatives of the civil society and the agricultural sector results as:

$$CON_{society}(\gamma^*) = \sum_{i \in (Civil, AG)} CON_i(\gamma^*)$$
 (4.11)

Further, we can calculate the final policy outcome that would result from legislative bargaining, assuming no lobbying and no belief updating occur. Let $\gamma^{\#}$ denote this policy outcome. We can then analogously define the average political conflict $CON_{society}(\gamma^{\#})$. The lower the political conflict when including political communication and lobbying in comparison to the political conflict without communication, the higher the involvement of the non-governmental organizations; thus, we define the following indicator of political ownership (PO-Consens):

$$PO-Consens = 1 - \frac{CON_{society}(\gamma^*)}{CON_{society}(\gamma^\#)}$$
 (4.12)

For political ownership generally decreases with the dominance of donor organizations in the political process (Jones et al., 2013a), we take the total political power of a donor organization as an additional sub-indicator of ownership (PO-Donor). Moreover, we use the density of the communication network between the national nongovernmental and governmental organizations as a measure of political involvement that corresponds to ownership (PO-involve).

4.4. Knowledge

The relationship between a policy decision and the induced policy outcome is complex and characterized by fundamental uncertainty. Politicians have only limited knowledge how policies turn into outcome and therefore form beliefs to make rational policy-decisions. Based on these policy beliefs they choose a policy that has a direct effect on the state of the world z, which may increase or diminish the welfare of the society. However, not only politicians have difficulties to fully understand the complex relation between chosen policy instruments and the desired policy outcome. Other stakeholders engaged in the policy process are unaware of the true political technology as well. This causes an inefficient implementation compared to a situation in which actors know the true technology and decide on the policies accordingly. The role of biased policy beliefs as a main determinant of inefficient policy choices is emphasized in an increasing number of publications (Beilhartz and Gersbach, 2004; Caplan, 2007; Bischoff and Siemers, 2011). The lack of political knowledge is thus an additional source of policy failure that decreases the efficiency of policy making.

In this context Henning et al. (2016) prove that an organization's optimal relative influence reflects its relative informational value, i.e. knowledge. This implies that the total influence exerted on other actors reflects her political knowledge

in the optimum. Under the assumption that the knowledge distribution is exogenous, the given relative informational influence enables us not only to evaluate the identified participation structure, but in addition allows us to comment on the optimal participation structure.

According to Henning et al. we can derive the optimal power distribution from the relation of any given power structure and knowledge. The optimal power distribution will then correspond exactly with the observed knowledge structure.

Now that we introduced the theoretical foundation and the derived indicators to assess participatory policy processes we apply our framework empirically. Part II provides the empirical application of the developed network approach. We outline the study design and the data collection in chapter 5 before we continue with the country case studies of Ghana, Senegal, and Uganda.

Part II. Empirical Application

Chapter 5.

Study Design and Data Description

Data for our analysis has been collected based on an elite network survey within a study on the CAADP-reform in Ghana, Uganda, and Senegal in 2012-2013. One of the key principles of the CAADP-reform process is to promote greater participatory and evidence-based policy processes during the design and implementation of CAADP at the country level. The process is characterized by intensive stakeholder consultations involving all development partners to ensure that political needs and desires of all societal groups are represented. Furthermore, the inclusion of local stakeholder organizations targets the integration of local evidence and knowledge into the policy process in ways that guarantee the formulation of effective and efficient development strategies. It is therefore a process characterized by extensive stakeholder dialog on the evidence at hand, policy beliefs, and ultimately, about political compromises.

In order to better understand these political economy issues within the context of CAADP, especially with regard to how they may either strengthen or weaken the fundamental principle of promoting an evidence-based and participatory policy process, a consortium of research partner institutions undertook a comparative analysis of CAADP policy processes in Ghana, Senegal and Uganda. The project 'Promoting Participatory and Evidence-Based Agricultural Policy Processes in Africa' (PEBAP) was jointly implemented by the International Food Policy Research Institute (IFPRI) and the Universities of Kiel and Hohenheim, in collaboration with local research institutions: The Institute of Statistical Social and Economic Research (ISSER), the Institut Sénégalais de Recherches Agricoles (ISRA), and the African Institute for Strategic Resource Services and Development (AFRISA), respectively.

One essential part of the study was a policy network survey conducted in all three countries on political interactions, policy goals and preferred policy positions of key policy makers and stakeholders regarding the most appropriate allocations to different policy programs under the CAADP agenda. This constitutes the data basis for our analysis.

Data has been collected in the framework of an elite network study which involves questions about networks, policy positions, and policy interests. Interviews were conducted among key stakeholder groups and policy makers in the agricultural policy domain in the respective country using carefully constructed survey questionnaires. The unit of observation in an elite network study is an organization, which is interpreted as a corporate actor (Coleman, 1990) and interviewees are considered experts of the organizations they represent. To identify organizations relevant for our study we follow a two-step procedure that is well established in policy network studies (Laumann and Knoke, 1987; Laumann et al., 1989; Pappi et al., 1995; Pappi and Henning, 1999).

In the first step, we used the nominalist approach to set boundaries of the theoretical policy network. Using the position method we compiled a list of potentially relevant organizations with formal political power and organizations that have access to these due to their institutional position. We further included organizations with expert knowledge such as policy analysts and interest groups in order to guarantee a consistent specification of the network boundaries in accordance with the highlighted role of stakeholder participation in CAADP and to align to our theoretical framework of expert communication. The final set of actors according to the nominalist approach consists of 112 actors for Ghana and Uganda and 103 actors for Senegal. Based on this list, personal interviews were conducted with representatives of the preselected organizations allowing for a snowball effect. The interviews began with targeting governmental organizations, especially the Ministry of Agriculture and Ministry of Finance as well as subordinate agencies, and later, the most important interest groups (e.g. farm organizations).

In the second step, we follow the realist approach that specifies the boundaries of the empirical network from the actors point of view. Personal interviews were conducted based on the list of stakeholder organizations, beginning with governmental organizations and the most important interest groups. Interviewees were asked to check all actors on the identified list that are perceived as extremely influential in policy decision-making. Based on this reputation question, new organizations were interviewed that had received three or more nominations. Overall, 46 stakeholders were interviewed in Ghana and Senegal whereas the snowball sampling led to 43 interviews in Uganda.

Table 5.1 displays the final set of stakeholders and their distribution in our sample for all three countries. The policy networks establishing the CAADP policy domain in these countries are almost equally sized. Stakeholder organizations are structured into four main categories. Political actors are comprised of the executive (i.e. ministries and head of the state), the legislative (i.e. parliamentary groups), and public sector agencies. Donor organizations and iNGOs constitute the group of international organizations in Ghana and Uganda whereas two supranational organizations are additionally included in the case of Senegal. Research organizations are comprised of both national and international research institutes. Interest groups span organizations of different fields and encompass agricultural industry and trade organizations, farmer organizations and cooperatives, as well as non-agricultural business and civil society organizations. Governmental institutions represent the largest share in all three countries. International organizations including donor and iNGOs (and supranational organizations) account for the second largest stakeholder group in Ghana (26%) and Senegal (24%), agricultural interest groups are especially strong represented in Uganda (26%). The elite questionnaires included four parts: a) policy networks, b) policy preferences (i.e., information concerning interest and position with respect to relevant CAADP policy issues), c) budget distribution to specific policy programs formulated in the specific CAADP investment plans, and d) organizational characteristics. Data collected for part c) and d) is not relevant for our analysis in this study and is thus disregarded in the description.

To collect reliable networks, we designed our network questions using a format

Category	Group	Ghana	Uganda	Senegal
Political Actors	Executive (EXEC)	6	7	7
	Public Sector Agencies (PUB)	5	6	5
	Legislative (LEG)	2	2	1
Int. Organizations	Donor (DONOR)	7	6	7
Ü	International NGOs (iNGO)	5	3	2
	Supranational Organizations (SUPRA)			2
Research Organizations	National Research Organizations (RESEARCH)	4	4	8
<u> </u>	International Research Organisations (RESEARCH)	3	1	2
Interest Groups	Agric. Industry and Trade (IG:AGIND)	4	8	6
-	Agric. Producer Organizations and Cooperatives (IG:PROD)	4	3	2
	Non-agriculuratl Business (IG:NA)	3	2	
	Civil Society Organizations (CSO)	3	1	4
		N = 46	N = 43	N=46

Table 5.1.: Classification of Stakeholders

that was extremely helpful in previous network studies (Pappi and Henning, 1999; Pappi et al., 1995). Interviewees were asked to check those organizations on the list with which they maintain a specific relation. To facilitate orientation, the list of organizations was organized according to the type of organization or the branch of interest represented by the respective organizations (see Table A1 in the appendix). As we did not know in advance whether we had identified all relevant organizations, we provided a hybrid type of list. That is, interviewees were presented with a roster of organizations and given the option to add additional organizations that they believed to be important. This approach addresses two problems: under-reporting in a free recall interview and failures in setting the theoretical network boundaries. In the following sections, we describe in more detail the reputation as well as the expert information and political support networks, as these networks are used for the empirical application of the proposed policy framework.

As described above, the reputation network is used to specify the network boundary from the actors' point of view. Respondents were asked to mark organizations on the list that according to their opinion, stand out as especially influential with respect to the agricultural policy process. The question was framed in a way that instructed interviewees not to exert great effort on a detailed investigation but to mark those organizations that came to mind instantly. This framing assumes that highly important organizations will come to mind quickly. Further, the interviewees had the option to use blank lines to add missing influential organizations. The respondents were asked in particular to

Please check those organizations that stand out as especially influential and if you know other organizations which are not on the list, please use the free lines to specify them.

Based on our theoretical framework, networks of expert information and political support are especially relevant. The expert information network is the centerpiece of our belief formation model for characterizing the policy process. We consider expert information to be any kind of information about policy impacts that an actor can communicate to another actor (e.g., knowledge about the

impact of farm input subsidies on central policy outcomes, such as the welfare of different social groups). To collect data on the information flow in the elite network, the interviewees were asked to check those organizations on the list of organizations with which they share information about the consequences of agricultural policies. Specifically, expert information transfers were collected from a supplier perspective (i.e., an organization delivers information to another organization) and a demander perspective (i.e., an organization receives information from another organization). Therefore, we could construct a confirmed expert knowledge network, which is more reliable from a network theoretic point of view (Pappi et al., 1995). A particular knowledge transfer is considered 'confirmed' if both the supplier and demander of knowledge independently report the transfer. Hence the respondent was asked to state independently both directions of communication based on the list of organizations. The relevant data of the confirmed communication network is then collected by asking the respondent:

Using the list of organizations again, please check all organizations to which your organization provides expert information on agricultural policies.

followed by the request

Using the list of organizations again, please check all organizations from which your organization receives expert information on agricultural policies.

The weight that an actor places on her own initial belief is another key input in our model. To identify an actor's level of own control, interviewees were asked to ascertain the extent to which they use externally provided expert information as opposed to their own expertise when formulating policy strategies. In detail, the respondents were asked to distribute 100 points to indicate the relative importance of external versus internal expert information. Own control is then calculated as the relative importance of own internal expertise.

The political support network is the centerpiece of the lobbying module in our theoretical framework. Similar to the expert information network, we construct the confirmed political support network from the supplier and demander perspective. The exchange of political support is characterized by political agents who seek to increase their chance of reelection and stakeholder organizations who try to mediate their clientele's interest to the politicians, i.e. trying to influence policies to generate as much welfare as possible for their members. In exchange for votes by members of the stakeholder organization the politician supports the favored policy position in the decision-making process. Political agents also represent their electorate in parliament and therefore try to find political solutions supported by the majority of their electorate. Thus, they have to decide how much political control they are willing to pass to the stakeholder organizations at the expense of potential voters if the political position of the interest group differs from the majority of voters. The weight that a political agent puts on the position supported by voters is another key input in our framework. Specifically, governmental institutions were asked to distribute 100 points to indicate the relative importance

of their intrinsic position (i.e. the orientation towards stakeholder organizations) versus the position supported by the majority of potential voters. The interest in political influence is then calculated as the relative importance of the position supported by voters.

In part b), we collected data on the policy preferences of organizations. We asked for the relative interest θ_{ik} and the preferred position, $\hat{\gamma}_{ik}$, of an organization i with respect to relevant CAADP policy issues k. Specifically, we assumed a nested structure of policy preferences. At the top level, we asked for the relative interest in and preferred position regarding relevant policy concerns. These policy concerns are relevant policy outcomes determined by CAADP and include:

- Growth in incomes
- Budget
- Poverty reduction
- Environmental sustainability.

The respondent was then asked to distribute 100 points according to the relative interest of her affiliated organization. 'Growth in incomes' was further specified according to sectors the organization might show particular interest in. Again the respondent was asked to state the organization's relative interest in the welfare of the agricultural sector, welfare of the non-agricultural industry sector, and the welfare of the market services sector. To collect detailed information on specific interests in the agricultural sector, the welfare of the agricultural sector was further subdivided into the welfare of agricultural producers, the agricultural export and the agro-processing sector, food security, and gender equity.

In the second step we asked for the organization's concrete policy positions regarding each policy concern. Therefore we formulated two extreme policy positions for each policy concern on a 7-point scale. These positions comprised levels of income and poverty, decisions on taxing or subsidizing specific sectors, government expenditure, economic costs of environmental management, gender responsive agricultural budgeting, and different yield gaps.

The next three chapters present the country studies of Ghana, Senegal, and Uganda. We begin with the Republic of Ghana that constitutes the comparatively most advanced economy in our sample in terms of economic and political development. First we provide an overview of the country characteristics followed by a description of the relevant stakeholder organizations that establish the CAADP policy domain on country level. Subsequently, we present the identified network structure of political participation by applying methods of quantitative network analysis on the collected communication and support network. Building on the theoretical model described in chapter 3 we analyze the underlying influence structure in the CAADP policy domain. In particular, we determine the influence arising from political communication and lobbying activities. These influence measures are essential for the empirical application of the network-based indicators developed in chapter 4 that constitute the basis for the quantitative assessment of stakeholder participation in policy processes.

Chapter 6.

Ghana

Ghana is a country in Western Africa, bordering the Gulf of Guinea, located between Cote d'Ivoire and Togo. It is divided into ten administrative regions (Western, Central, Greater Accra, Volta, Eastern, Ashanti, Brong Ahafo, Northern, Upper East and Upper West) (see Figure 6.1). The population size of Ghana is 25.9 million (2013), which is among the ten biggest states of Sub-Saharan Africa. The country is home to many different ethnic groups, the dominant group is the Akan tribe with a population share of 47.5%, 16.6% belong to the Mole-Dagbon tribe, 13.9% to the Ewe tribe, 7.4% to the Ga-Dangme tribe and 5.7% to the Gurma tribe. The country is considered to be one of the more stable nations in West Africa and was categorized as a lower middle income country by The World Bank (2013) with a GNI per capita of US \$1,770 and a PPPpc of US \$3,900 in 2013. The economy mainly relies on cocoa, gold and lately oil. Although agriculture is only providing 21.5% towards the GDP, more than half of the workforce is employed in the agricultural sector (56%). The oil production in Ghana just started in 2010 and led to a rapid GDP growth by 14.4% in 2011, the score dropped again to 7.6% in 2013, but Ghana is still experiencing one of the highest growth rates in Sub-Saharan Africa.

Ghana has the lowest infant mortality of the three countries with 13.4 deceases per 1,000 births, whereas the maternal mortality rate of 380 per 100,000 live births is higher than in Uganda or Senegal. The youth literacy accounts to 86% of population ages 15-24 years which bears witness of a good education system. The unemployment rate of 5% is similar to Uganda.

The Freedom House Index (Freedom House, 2014) considers Ghana to be a free country, with a political rights rating of one and a civil rights rating of two. It is further considered to be a democracy with a Polity IV score of eight in 2012 (Marshall et al., 2012).

Of the three case-countries covered in this study, Ghana is the most advanced economy. Both, in a political as well as in an economic sense, Ghana is in the lead compared to Senegal and Uganda.

This chapter provides the assessment of the CAADP policy process based on the theoretical framework we developed in part I. The next section gives a short overview on the relevant organizations included in our sample. Subsequently, we perform a blockmodel analysis to reveal the underlying network structures of the communication and lobbying network. To assess the participatory character of the policy process in Ghana we apply the network-based measures described in chapter 4.



Figure 6.1.: Administrative Regions in Ghana Source: Map No. 4186 Rev. 3, February 2005, UNITED NATIONS

6.1. Relevant Organizations in the CAADP Policy Domain

Table A.4 in the Appendix lists the 46 political actors in Ghana and the corresponding type of organization. The boundary specification for the CAADP policy domain of Ghana is based on the indegree centralities (IC) of the reputation network. The reputation network is an adjacency matrix that depicts the nominations of political actors that are perceived as especially influential in the formulation of agricultural policy programs. The indegree centrality measures the prominence of actors in a directed network and relates in our case to the influence held by political actors in the agricultural policy domain in Ghana. Summarizing an organization's received nominations and standardizing by the number of maximal possible nomination yields the indegree centrality whereby self-nominations are excluded.

In Ghana, two groups of political actors stand out in terms of perceived political influence. With an average indegree centrality of 0.79, the group of donors represent the most influential organizations in agricultural policy in Ghana, followed by the Executive (0.71) and the Public Sector Agencies (0.69) (see Table A.2). However, the high average indegree for the Executives is primarily determined by the Ministry of Food and Agriculture (MOFA). With a maximal indegree of 1 MOFA stands out as the top most influential stakeholder in Ghana, whereas both the Ministry of Finance and Economic Planning (MOFEP) and the Ministry of Trade and Industry (MOTI) share an indegree of 0.72, followed by the Ministry of Lands and Natural Resources (MLNR) and the Ministry of Environment, Science, and Technology (MEST) who both obtain only a share of 0.52 (Table A.1).

6.2. Identified Network Structures of Political Participation in Ghana

To identify the network structure of political participation in Ghana we apply blockmodel analysis using the SNA package for the statistical software 'R.' by Butts (2008). Blockmodel analysis is a method of positional analysis based on structural equivalence. The idea behind positional analysis is to simplify the information in a network data set. Blockmodeling allows us to identify actors that have the same pattern of relation to all other actors in the network. Actors that are structural equivalent have identical entries in rows and columns of the socio-matrix and are aggregated into blocks. Actors in the same block do not necessarily have a direct connection to each other, they rather share the same structural relation, i.e. all in- and outgoing connections, to all other stakeholders in the respective network. The Hamming distances between all pairs of positions in the adjacency matrices are computed and classes are formed through hierarchical cluster analysis. The input graphs are reordered by class and blockmodel reduction is applied based on the blockdensity.

The result is a reduced graph of the original network that consists of blocks that depict the underlying structure within the network. Application to quantitative network data of political communication and political support enables us to iden-

tify the embeddedness of stakeholders in political communication and lobbying mechanisms.

6.2.1. Political Communication

The blockmodel analysis yields a 6-block solution and reveals that political communication is clearly structured in Ghana. We identify a center-periphery structure in the agricultural policy domain of Ghana. The central position is occupied by the Ministry of Food and Agriculture (MOFA) which acts as a broker by linking the peripheral blocks. Political communication in Ghana is characterized by a very close connection between stakeholder organizations in the periphery and the ministry. Interestingly, stakeholders tend to exchange expert information within rather than across the peripheral blocks.

Analyzing the corresponding blockmemberships yields further interesting insights². In addition to a political core which includes the central governmental institutions (Block 2) and a political periphery (Block 3) primarily comprised of interest groups, we identify a highly active position of Donors (Block 4) and International Organizations (Block 5). Block 1 and Block 6 both consist of only one political actor. MOFA (Block 1) plays a key role in political communication in Ghana and holds a broker position by connecting all of the remaining blocks. The General Agricultural Worker's Union (GAWU, Block 6) is located at the receiving end of political communication and acts as a passive observer.

Figure 6.2 displays the underlying structure of political communication in Ghana. The reduced graph consists of six blocks. The blocksize reflects the number of actors in the respective block. Sender and receiver of expert information are depicted by arcs representing the existence of established communication ties between blocks. Edge-weights are based on the corresponding density between or within blocks and range from dark gray if communication is very dense to light gray if only few actors relate to each other in providing information on agricultural policies. The communication pattern depicted in the reduced graph in Figure 6.2 is based on the mean block density. The density reflects the ratio of established ties and possible ties in a graph or subgraph. The mean block density is then just the average of the ratios between and within the identified blocks. In order to better identify the underlying relational structure we omit the ties between and within positions if the corresponding density is below the mean.

The exchange of expert information is determined by the Ministry of Agriculture (Block 1). Its central position has already been noted earlier as it stands out with the highest indegree possible in the reputation network (see Table A.1 in the Appendix). Political communication in Ghana is dominated by the broker position held by MOFA which enables the ministry to channel the information flow across and between various stakeholder organizations. Except for Block 6, MOFA sends and receives expert information by almost all stakeholders in the agricultural policy domain. Table 6.1 provides a more detailed picture of the information exchange in the agricultural policy domain by depicting the corresponding intra- and inter-blockdensities, i.e. the share of established communication ties in rela-

²Table A.5 in the Appendix lists the corresponding blockmembership accordingly.

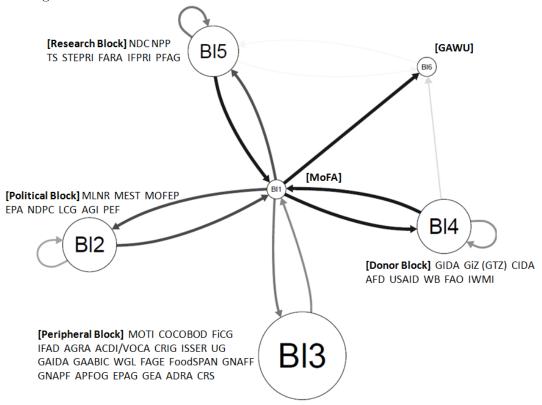


Figure 6.2.: Blockmodel Structure of Political Communication in Ghana

tion to all ties possible between and within the blocks of interest. The seemingly strong (one-sided) connection between Block 1 and Block 6 in comparison to the remaining relational patterns results from the fact that both blocks consist of only one political actor. Hence, the inter-blockdensity between MOFA and GAWU can only take the value of 1 if one actor communicates with the other, or 0 otherwise. The missing intra-blockdensity observed for both MOFA and GAWU is the result of the number of blockmembers. As we do not allow for self-ties in the actor-actor matrix of the communication network the intra-blockdensity is omitted.

Table 6.1.: Density of Empirical Blocks: Expert Information

	MoFA	Political	Peripheral	Donor	Research	GAWU
MoFA		0.88	0.76	1.00	0.86	1.00
Political	0.88	0.64	0.18	0.28	0.09	0.00
Peripheral	0.71	0.14	0.09	0.15	0.24	0.29
Donor	1.00	0.23	0.11	0.70	0.18	0.50
Research	1.00	0.07	0.16	0.27	0.76	0.43
GAWU	0.00	0.12	0.29	0.12	0.43	

Interestingly, in addition to the leading ministries and public agencies that determine the agricultural policy process in Ghana, the political core (Block 2) includes two non-agricultural interest groups (IG:NA), i.e. The Association of Ghana Industries (AGI) and The Private Enterprise (PEF). The political periphery (Block 3) represents with 21 political actors the largest group of stakeholders

in our blockmodel analysis. Even internally, peripheral organizations are only weakly connected to each other. The information exchange within the peripheral Block 3 is almost non-existent as indicated by a density of only 0.09 and thus constitutes not only the lowest absolute value given its size. Interestingly, we find the Institute of Statistical, Social and Economic Research (ISSER), one of the leading think tanks in Ghana, among the very heterogeneous peripheral stakeholders in Block 3. Apart from the majority of top donor organizations such as World Bank, FAO, USAID and the german GTZ, Block 4 includes with the Ghana Irrigation Development Authority (GIDA) and the International Water Management Institute (IWMI) two political actors focusing on water management. Stakeholders in this block are highly integrated in the policy process by its very close collaboration with MOFA. Every stakeholder in Block 4 exchanges expert information with MOFA on a mutual level. Block 5 consists mainly of research organizations and is characterized by the same pattern of mutual information exchange with MOFA. The dialog with the political core (Block 2) is at the lowest level observed. This is particularly surprising as Block 5 also includes the two political parties in Ghana, i.e. the New Patriotic Party (NPP) and the ruling party New Democratic Congress (NDC).

6.2.2. Lobbying

In addition to the expert network of political communication, one of the key components of our theoretical framework is the political support network. In democracies stakeholder organizations are representatives of their members and their interests. Therefore the policy position of such a group is highly connected with the resulting welfare for their members. Thus, a major role of stakeholder organizations in democracies is to intermediate their clientele's interest to politicians, i.e. trying to influence policies or politicians to generate as much welfare as possible for their members. Obviously, politicians won't support a stakeholder organization's position without any reward. On their part they expect in return the political support of members of the stakeholder organization. However, political agents also represent their electorate in parliament. Therefore, political agents are interested to find political solutions supported by a majority of their electorate. The underlying support network, other than the communication network, is determined by mutual benefit of the respective actors in form of interest mediation and support seeking. We have to differentiate between political actors (i.e. EXEC, LEG) who receive support and advocate the stakeholders' interests in return, and the stakeholders who send political support in return for a representative of their interest. As not all stakeholders have direct access to political actors they approach a broker to represent their interests. Thus, we do not necessarily observe a clear politician-stakeholder structure.

The blockmodel analysis of the political support network yields a 6-block solution and displays that lobbying is clearly structured in Ghana. As already noted, lobbying is the approach of interest groups and stakeholders to influence political actors in charge by offering political support in exchange for advocacy by the politician. Not surprisingly, the central position within the political support network is occupied by the leading ministries that determine agricultural policy

in Ghana. In contrast to political communication, lobbying is determined by the exchange of support between rather than within the identified blocks. This results from the nature of lobbying as well as from the properties of blockmodel analysis. Stakeholders have either direct access to political actors or indirect access via political brokers. Since blockmodel analysis identifies actors that have the same patterns of relation to all other actors in the network, they do not approach stakeholder in the same block since they would have the same access to the politicians. Interestingly, the only block for which we observe exchange of political support within is the group of donors.

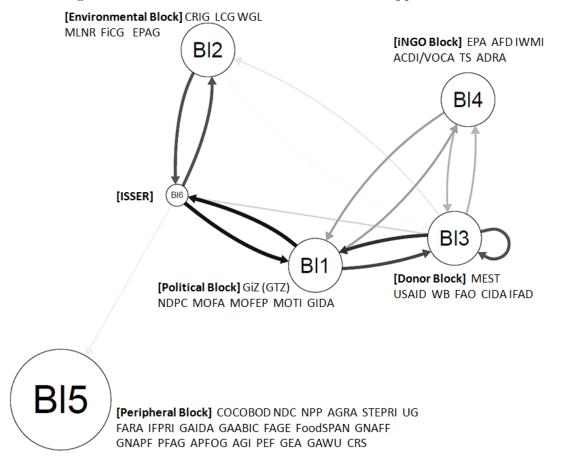


Figure 6.3.: Blockmodel Structure of Political Support in Ghana

Figure 6.3 displays the underlying structure of political support in Ghana. The reduced graph consists of six blocks with the blocksize reflecting the number of actors in the respective block. Sender and receiver of political support are depicted by arcs representing the existence of political exchange between blocks. Edge-weights are based on the corresponding density between or within blocks and range from dark gray if support is very dense to light gray if only few actors relate to each other. As before, we based the relational patterns of the reduced graph on the mean block density, i.e. we omit ties between and within positions if the corresponding density is below the mean in order to better identify the patterns of political support.

The blockmodel analysis yields a 6-Block solution and shows that political support

is clearly structured in Ghana. Interestingly, almost 46% of the political actors do not participate actively in the exchange of political support in Ghana (Bl5). The blockmembership of the support network reveals a clear affiliation of stakeholder groups in correspondence to their political stance in accordance to the nature of lobbying (see Table A.5). Not surprisingly, the center of political support is occupied primarily by the main governmental institutions (Bl1). It is closely related to Ghana's leading national think tank (ISSER, Bl6) as well as the group of top donors (Bl3). The pattern of political support in Ghana is further characterized by two very heterogeneous groups of stakeholders who are clearly distinguished by their level of access to Ghana's policy makers. Whereas Block 2 consists mainly of governmental institutions and has only indirect access to the political center via the broker position obtained by ISSER (Bl6), Block 4 is primarily determined by iNGOs and has direct as well as indirect access via the donor block. The largest group of stakeholders (Bl5) has very limited access to the political core in Ghana.

Table 6.2.: Density of Empirical Blocks: Political Support

	Political	Environment	Donor	iNGO	Periphery	ISSER
Political	0.00	0.00	0.86	0.64	0.30	1.00
Environment	0.06	0.13	0.39	0.36	0.14	0.83
Donor	0.92	0.44	0.83	0.58	0.10	0.50
iNGO	0.64	0.33	0.58	0.03	0.10	0.17
Periphery	0.30	0.04	0.04	0.03	0.07	0.24
ISSER	1.00	0.83	0.33	0.17	0.43	

Table 6.2 displays the density table of the underlying lobbying structure in Ghana. As already seen in Figure 6.3, the diagonal indicates a very low exchange of political support within the blocks. The group of donors (Bl3) is a special case. A possible explanation for the very high intra-blockdensity (0.83) is the alignment of policy preferences among donors which ultimately leads to an increase in lobbying power. Though below the mean and thus omitted in Figure 6.3, we observe a mutual exchange of political support between the peripheral Block 5 and the political Block 1 as indicated by an inter-blockdensity of 0.3. This value is mainly determined by MOFA which receives political support by over 76% of the stakeholders in Block 5. This further underlines the dominance of the ministry in the agricultural policy domain of Ghana. Moreover, the extremely close connection between the political core and the donor group on the one hand and the dense relation with ISSER on the other points to a donor-led knowledge-based agricultural policy in Ghana which we will investigate in the next section.

6.3. Political Influence and Power

According to the belief-module in our theoretical framework, communication structures determine political influence among governmental and non-governmental organizations. At a descriptive level, an analysis of the ways in which organizations are influenced by each other is of interest. Beyond a descriptive analysis, it is especially interesting to evaluate the impact of political influence structures on

different aspects of political performance. For example, evaluating the extent to which the final policy positions of governmental organizations are influenced by the political views of non-governmental organizations by measuring the effective participation using political power indices. Or, evaluating the extent to which central organizations take political leadership vis-à-vis civil society in a top-down political process using network multipliers. Moreover, a high political influence exerted by donor organizations would characterize a donor-led policy process, which might undermine political ownership if national stakeholder organizations feel ignored. Furthermore, an analysis of the extent to which the identified political influence and power structures reflect the political expertise of the involved governmental and non-governmental organizations is of interest. To assess these interesting questions, we provide a descriptive analysis of the identified political influence and power structures in the following section and evaluate the impact of the identified structures on political performance in the next section. The network multipliers derived from political communication, as described in section 3.2, are the centerpiece of our political influence model.

6.3.1. Polticial Influence

Table 6.3.: Network	Multipliers	per Group:	Expert	information
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	EXEC	PUB	LEG	DON	iNGO	RES	AG	PROD	NA	CSO
EXEC	0.70	0.04	0.01	0.05	0.02	0.06	0.03	0.02	0.05	0.02
PUB	0.16	0.50	0.05	0.12	0.02	0.09	0.02	0.01	0.02	0.02
$_{ m LEG}$	0.04	0.02	0.73	0.02	0.03	0.08	0.02	0.02	0.02	0.01
DON	0.13	0.04	0.03	0.65	0.04	0.08	0.02	0.01	0.02	0.00
iNGO	0.11	0.01	0.05	0.04	0.68	0.08	0.01	0.01	0.01	0.00
RES	0.07	0.01	0.01	0.05	0.03	0.80	0.01	0.01	0.01	0.00
\overline{AG}	0.11	0.01	0.01	0.05	0.02	0.09	0.60	0.07	0.03	0.01
PROD	0.09	0.03	0.01	0.03	0.04	0.06	0.03	0.63	0.03	0.05
NA	0.21	0.02	0.01	0.04	0.01	0.04	0.03	0.01	0.59	0.03
CSO	0.12	0.12	0.03	0.09	0.01	0.08	0.01	0.02	0.02	0.48

Table 6.3 displays the communication network multipliers that were calculated for specific categories of governmental and non-governmental organization. The network multipliers presented in Table 6.3 correspond to the aggregated weight of the policy positions of the column category in determining the final policy position of the average individual row category. For example, the first row represents the aggregated influence of the column category on Ghana's executive (EXEC). The final policy position of the executive after communication is determined to 70% by its own initial position. The aggregated weight of Donors' initial position (DON) on the executive's final position is 5% compared to only 2% for the civil society organizations (CSO).

Please note, that the relatively high network multipliers on the diagonal result from a very high own control stated by the respective organizations within the groups. The own control is an indicator for the trust in external information, i.e. the relative importance of an actor's own expertise versus external information received from other organizations. An own control of 1 indicates that the actor relies on her expertise exclusively whereas an own control of 0 is indicative to the dependence on external information.

We identify a decrease in the own network multipliers in accordance with the position of the respective group in the policy domain. Research organizations (RES) consider themselves as technical leaders with high political knowledge as indicated by a high own network multiplier of 80%, followed by the legislative (LEG) and the executive (EXEC) with 73% and 70%, respectively. International Organizations are in midfield and exhibit own network multiplier of 68% (iNGO) and 65% (DON), followed by the agricultural sector, whereas interest groups rely to a greater extent on expert information than other stakeholder groups with multipliers as low as 48% (CSO). Public sector agencies (PUB) report a relatively low own control and are more open to expert information provided by other organizations. Like their counterparts in the ministries and in the parliament, public agencies are supposed to be technical leaders with high political knowledge and thus should pay less attention to other positions. Beyond own control, the influence profiles of organizations are interesting. Influence profiles identify influential organizations and describe the extent to which other organizations influence the initial policy position of an organization. Formally, influence profiles can be described by the vector of relative network multipliers that operate as an influence field on an organization. Based on our belief formation model, the influence field operating on an actor is determined by her local communication structures. Hence, the more actors are structurally equivalent in the communication network, the more similar c.p. are their influence fields. Accordingly, we conducted a cluster analysis using the influence profiles of the identified organizations. Based on the reported statistical fit values, we preferred a 6 cluster solution. Overall, we find that governmental actors exhibit the highest influence in the agricultural policy domain, followed by international organizations and research organizations alike.

Even though the optimal number of clusters is identical to the solution obtained in the blockmodel analysis, the resulting clusters do not correspond to the computed blockmemberships of the communication network. Cluster analyzing the computed influence profiles yields a very large cluster which comprises 67% of the actors involved in the CAADP policy domain (Cluster 1). Except for non-agricultural interest groups, cluster 1 corresponds to the relative distribution of associated stakeholder organizations in the whole data-set and thus delivers a relatively complete overview of the structural properties of political influence exerted by the aggregated stakeholder groups³. The membership in cluster 2 to 6 however are characterized by institutional and advocacy affiliation which is also reflected in the influence fields operating on the same. Cluster 2 constitutes the non-agricultural cluster and comprises next to governmental institutions primarily concerned with trade and economic development (i.e. MOTI, MOFEP, NDPC) three interest groups related to the private industry sector as well as a representative of the Ghanaian agricultural export sector (FAGE). Cluster 3 is composed of two organizations engaged in environmental protection (i.e. EPA, EPAG), whereas cluster 4 (Research) and cluster 5 (IG:Agrar) are determined by

³Table A.5 in the Appendix lists the corresponding cluster memberships.

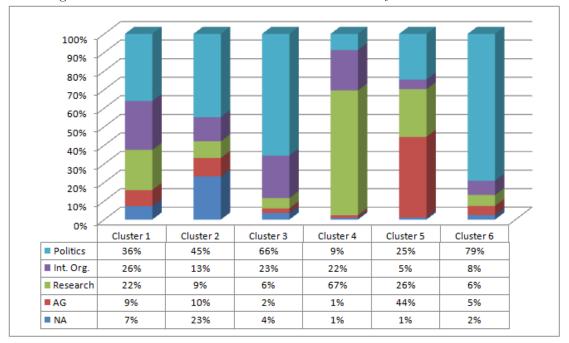


Figure 6.4.: Influence Profile in the CAADP Policy Network in Ghana

institutional affiliation. The Catholic Relief Services (CRS) constitutes its own cluster (i.e. cluster 6).

We aggregated the relative influence of stakeholders according to their institutional affiliation (see Table 5.1) and differentiated between agricultural AG (i.e. IG: AGIND and IG: PROD) and non-agricultural NA (i.e. IG:NONAGRAR and CSO) stakeholder organizations. Figures 6.4 and 6.5 indicate that governmental organizations exert the highest influence on other organizations with an average influence share of 38%, followed by international organizations and research organizations with an average influence of 22% and 21%, respectively. Interest groups exert low influence on other organizations with shares between 5%-6%. The influence of civil society organizations is negligible with an average value as low as 3%.

A more detailed analysis of the influence of governmental organizations reveals that the main influence on other organizations is exerted by MOFA and other ministries (i.e. MLNR, MEST, MOTI, and NDPC). In contrast, political parties (i.e. NDC and NPP), public agencies and MOFEP exert little influence on other organizations (see Figure 6.5). A comparison of the average influence across clusters reveals interesting characteristics.

Cluster 1 is strongly influenced by the three stakeholder groups that account for the highest average influence on all organizations, which is intuitive as cluster 1 represents the majority of stakeholder organizations in our analysis. Except for the NA interest group the cluster membership reflects the relative distribution of actors in the agricultural policy domain of Ghana. However, while governmental organizations exhibit a slightly lower influence share of 36% compared to the average of 38% for all organizations, the influence of interest groups, international as well as research organizations is above the average value.

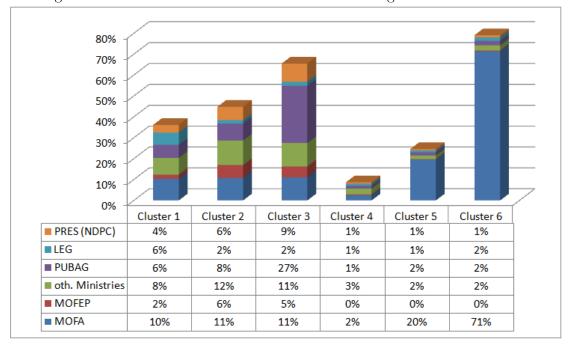


Figure 6.5.: Relative Influence of Governmental Organizations in Ghana

In contrast, cluster 2 which is comprised equally of ministries and non-agricultural interest groups, is heavily influenced by governmental institutions (45%) and NA (23%). While it is conceivable that cluster 2 is primarily influenced by NA and ministries that represent the majority of cluster 2, the extremely high value for NA compared to its average value of 8.8% for all actors is of particular interest. The high influence of NA exerted on cluster 2 is not only the result of a very high own control of non-agricultural stakeholders, but also the outcome of a significant impact of NA interest groups on the executive in cluster 2, among which we also identify the Ministry of Finance and Economic Planning (MOFEP).

Cluster 3 corresponds to the environment advocacy and is composed of the CSO 'Environmental Protection Association of Ghana' (EPAG) and the public agency 'Environmental Protection Agency' (EPA). The very high influence of governmental institutions on cluster 3 is primarily determined by public agencies (27%) and other ministries (21%) rather than MOFA and MOFEP (see Figure 6.5). However, while EPAG is heavily influenced by public agencies, with EPA leading the way, the executive has an impact on the policy position of EPA. International Organizations account for 23% of the influence field operating on cluster 3, with donor organizations outweighing iNGOs by far with 21% compared to only 2%. As expected, the influence field operating on research organizations (cluster 4) is primarily determined by research institutions (67%) followed by International Organizations (22%). In contrast to cluster 3, the influence of international organizations is equally distributed with donor organizations and iNGOs exhibiting the same values (11%). The influence exerted by governmental institutions on cluster 4 is the lowest observed with only 9%.

Cluster 5 is characterized by a particularly high influence of agricultural organizations (44%) whereas governmental and research organizations are almost equal

with 25% and 26%, respectively. Within the governmental institutions MOFA accounts for 20% of the influence on cluster 5, while IFPRI determines the relatively high influence within research organizations. With two organizations related to the agricultural industry sector and one agricultural producer, cluster 5 is entirely composed of the agricultural sector. Hence it is not surprisingly that we observe such an extremely high impact of agricultural organizations. However, there are only few organizations determining this high influence, above all the Apex Farmers Organization of Ghana (APFOG), Wienco Ghana Limited (WGL), and the Peasant Farmers Association of Ghana (PFAG).

The Catholic Relief Services (CRS) constitutes its own cluster. Heavily influenced by governmental institutions, primarily determined by MOFA, this cluster emerged in the very beginning of our hierarchical cluster analysis. In contrast to the other NGOs in our sample (cluster 1) who receive influence shares by governmental institutions in the range of 26%-44%, this stakeholder organizations is a clear outlier.

6.3.2. Political Power

As we are interested in the impact of these specific influence structures on political performance, we combine the network multipliers with political decision-making power to derive the total political power of the individual stakeholder organizations.

By constitution, Ghana is a presidential democracy, where legislative regulations are decided by the parliament under a simple majority rule. The president lacks a binding veto power and the government has no binding agenda-setting power vis-à-vis the parliament. Nevertheless, in political practice, the parliament exerts no significant legislative power and is reduced to a pure acclamation machine; the real legislative power rests in the government. Accordingly, we constructed relevant legislative games, accounting for the dominant role of governmental institutions as legislative norms. However, the literature is ambiguous regarding the specific role of different governmental institutions, namely the power of the involved ministries and the president. Therefore we constructed different legislative games. In particular, we assumed that agricultural policy in Ghana is decided following the principle of departmental responsibility, i.e. the Ministry of Food and Agriculture (MOFA) has agenda-setting power vis-à-vis the cabinet including the president, and the cabinet decides with a simple majority. Alternatively, in the power scenario PRES, we assume that the president functions as a 'primus inter pares' in his cabinet (i.e. we assume that the president has agenda-setting power vis-à-vis his cabinet). In the contrasting scenario DUO, the president and MOFA share agenda-setting power. In the three scenarios MOFAPARL, PRESPARL, and DUOL we assume that legislative decision making in Ghana is furthermore characterized by party leadership (i.e. the ruling party NDC) in combination with the aforementioned scenarios. Table 6.4 summarizes the calculated banzhaf indices for the different scenarios. In the three government-led scenarios, legislative decision-making power is shifted among MOFA, the President, MOFA and the President, and the leading party NDC in combination. Please note, that the

opposing party NPP is included for the sake of completeness and does not have agenda-setting power in any of the above mentioned scenarios.

Table 6.4.: Banzhaf Power Indices

	MOFA	PRES	DUO	MOFAPARL	PRESPARL	DUOL
MOFA	0.3478	0.1304	0.2273	0.2581	0.0968	0.1852
MLNR	0.1304	0.1304	0.1364	0.0968	0.0968	0.1111
MEST	0.1304	0.1304	0.1364	0.0968	0.0968	0.1111
MOTI	0.1304	0.1304	0.1364	0.0968	0.0968	0.1111
MOFEP	0.1304	0.1304	0.1364	0.0968	0.0968	0.1111
NDPC	0.1304	0.3478	0.2273	0.0968	0.2581	0.1852
NDC	0	0	0	0.2581	0.2581	0.1852
NPP	0	0	0	0	0	0

Source: Calculated with IOP 2.0

Informational Influence and Lobbying Power

To analyze how much political influence an actor gains from participation in the policy process we combine the respective network multipliers with banzhaf-power indices to yield the belief and lobbying power, respectively.

In detail, the belief power reflects the informational influence⁴ an actor without original voting power attains from her interaction in the communication network. Informational influence results from combining the model of belief formation with (in)formal political power indices as described in section 6.3.2. In detail, informational influence summarizes

- the political influence of actors without any original voting power according to their information provision to actors endowed with formal or informal political power and
- the political influence of actors with original power who give off original power when they rely on information provided by elite members to form their final policy position.

The lower the number of actors having access to an information receiver, the higher is the influence of the sender's position on the final position of the receiver. While actors might be able to contact influential players directly, they might also gain indirect access to influential players via policy brokers. Thus, the belief-power of an actor follows from the weight of actor j's initial position for agents i's final position (m_{gi}) and an agent's original voting power C_g (see section 3.2). Accordingly, we combine the support multiplier with the banzhaf power indices to analyze the political power resulting from an actor's access structure in the political support network.

The belief power represents both, the political influence of actors without any original voting power that results from provision of expert information to actors

⁴From now on we will use the terms belief power and informational influence synonymously. The same holds for lobbying power and support influence.

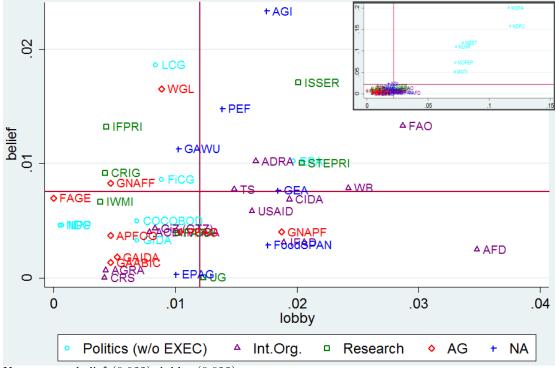


Figure 6.6.: Political Power: Lobbying and Communication

Note: mean belief (0.022), lobby (0.022); mean w/o EXEC: belief (0.008), lobby (0.012)

endowed with formal or informal power, and the political influence of actors with original power who give off power when they rely on the information provided by elite members to form their final policy position. The lobbying power reflects the political influence of an actor without any original voting power that results from her access structure to powerful legislators in the support network. The better access an interest group has to powerful legislators, the more successful are the influential activities of this organization. Following this theoretical approach we expect to find a pattern of power distribution that reflects the institutional affiliation of elite members in the CAADP policy domain. For example, research organizations are clearly a provider of knowledge and expert information and therefore are expected to have greater political influence resulting from knowledge provision than from successful lobbying. Donor organizations on the other hand are expected to have relatively greater lobbying power.

Figure 6.6 displays the resulting political power from access to powerful legislators in the communication and support network by organization. We include the means of both power indices to create quadrants within the coordinate plane which enables us to identify organizations according to their relative power, i.e. being relatively influential due to either its provision of expert information or successful lobbying activities. Governmental organizations are extremely influential and yield comparatively very high values in both belief and lobbying power as can be seen in the small figure in the top right corner. In order to better distinguish the power distribution of non-governmental organizations we exclude the ministries and the office of the president from the scatter plot and adjust the means of belief

and lobbying power, respectively.

In general, the power distribution in Ghana depends on the organizational affiliation of the political actors as expected. The executive (i.e. the ministries and the president) account for the largest share of power due to its original voting power in the legislative game. Even though the executive is located in the top right quadrant which indicates above average values for both power indices, we can clearly identify a comparatively greater share in belief power which is in contrast to the non-governmental organization who appear to gain slightly more influence through access in the support network.

Comparing the mean power indices before and after exclusion of the ministries supports this finding and shows that the executive is responsible for balancing the average political power with mean values of 2.2% whereas the exclusion of the executive yields asymmetrical values for the lobbying and belief power of 1.2% and 0.8%, respectively. International organizations include donor organizations and iNGOs alike. Nearly all iNGOs are located in the lower left quadrant whereas the majority of donor organization appear to be quite powerful lobbyists as expected. Especially the french development agency AFD is extremely well connected to powerful legislators in the support network, while its informational influence is clearly below average. Multinationals like FAO and World Bank appear as all-rounders and hold above average shares in both belief and lobbying power. Ghana's leading think tank ISSER is the most influential research institute and yields high values in both its belief- and lobbying power with 1.7% and 2\%, respectively. While the Science and Technology Policy Research Institute (STEPRI) is comparatively more engaged in lobbying activities, IFPRI and the Cocoa Research Institute of Ghana (CRIG) are linked with powerful legislators in the communication network. We find the agricultural sector (AG), which includes both farmers and agribusiness, in the lower left quadrant indicating that agricultural interest groups exert only little political influence. However, we identify two agricultural interest groups who exhibit significant power shares above average. The agribusiness interest group Wienco Ghana Limited (WGL) is among the top four influential stakeholder organizations (1.7%) in terms of belief power, whereas the Ghana National Association of Poultry Farmers (GNAPF) appears to be comparatively more successful in its lobbying activities (1.9%). Interestingly, non-agricultural interest groups (NA) including CSOs clearly outweigh stakeholders engaged in the agricultural sectors, both in terms of belief- and lobbying power.

Total Power

Following equations (4.1) to (4.3), we calculate the total political power⁵ that determines the final policy position (y^*) by combing the political power derived from the political bargaining game, including lobbying, with the informational influence derived from political communication networks.

Figure 6.7 displays the total power on group level. Not surprisingly, the major share of total political power is held by the executive (43%), where MOFA and the NDPC as a proxy for the president are particularly powerful institutions

⁵From now on we will use the term total influence synonymously.

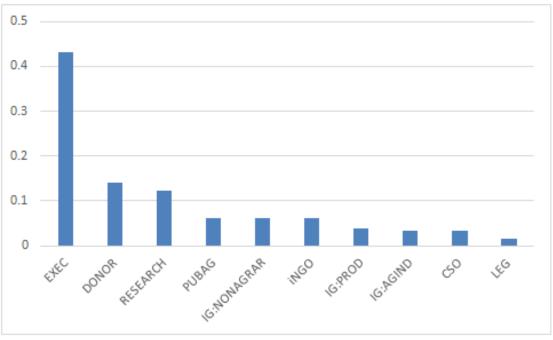


Figure 6.7.: Total Political Power

with individual total power of 12.4% and 9.3%, respectively (see Figure A.1 in the Appendix). These high power shares are primarily the result of the assumed constitutional scenario (DUO) in which the president and MOFA share agendasetting power. The other four involved ministries (i.e. MOFEP, MOTI, MEST, and MLNR) are comparatively less powerful as individual institutions with a joint power of only 21.5%. Donor and research organization are with 14.1% and 12.4%, respectively, the most powerful non-governmental organizations whereas the remaining stakeholder organizations range between 6.1% (PUBAG) and 3.3% (CSO).

The distribution of total power among stakeholder groups in the CAADP policy domain in Ghana suggests a top-down policy process as the vast majority of political power is held by governmental organizations. Further, the comparatively large shares of donor and research organizations hint at a donor-led and knowledge-based process which might undermine the identification of the general public with formulated policy goals. Whether or not the agricultural policy process in Ghana is of participatory nature will be examined in the next section in which we apply the network indicators derived in chapter 4.

6.4. Stakeholder Participation in the Policy Process

So far we concentrated our analysis on the distribution of power and the influence of governmental and non-governmental actors in the policy process. In this section we discuss how the identified network and power structures impact political performance. In particular, we used the derived indicators to measure political accountability, capture and ownership. Unfortunately, we were not able to collect empirical data to apply the knowledge indicator which is therefore not further

considered in this chapter. While the accountability indices primarily consist of the political power held by particular stakeholder groups, the measures of capture and ownership additionally take account of the relative importance of certain policies and the ideal policy positions, respectively.

We distinguish three stakeholder groups. In particular, we aggregate CSOs, iN-GOs, and farmer interest groups as general representatives of the *Society*. We include the group of CSOs as the representative of the interests and needs of the general public. The group of NGOs is often considered suitable for promoting participatory grassroots development and self-reliance, especially among marginalized segments of society (Ndegwa, 1996) and thus constitutes another valid representative. While CSO and NGOs represent the desires of the civil society, we also want to include the group of agricultural producers as the agricultural sector occupies the majority of the labor force and contributes a significant share to the Ghana's GDP.

To adequately assess the level of accountability held by the society compared to other influential stakeholder groups we additionally include the *Industry*, i.e. non-agricultural and agribusiness interest groups. Furthermore, we include the group donor organizations (*Donor*). One argument in favor of the explicit participation of donors is the contribution to evidence-based policy-making. In Sub-Sahara African countries, statistical data is often weak or absent. Thus, additional information available through the participation of donor organizations can be of high value as long as it is not biased by particular interests (Zimmermann et al., 2009).

6.4.1. Accountability

The ability of citizens to hold governmental organizations accountable for their actions is important to reduce the risk of biased incentives of politicians and public administrators that would lead to inefficient policies. To measure the degree of accountability we use the sum of the total political power of important stakeholder organizations as a general indicator (GA-Total). To understand how policy network structures interact with constitutional rules and to comparatively evaluate the extent of political power due to communication and access structures, we use the belief power (GA-Belief) and lobbying power (GA-Lobby) as additional sub-indicators.

Figure 6.8 depicts the general accountability as well as the two sub-indicators for all three stakeholder groups. In general, the government of Ghana appears to be more accountable to the society than to the industry as indicated by values in GA-Total of 13.2% and 10%, respectively. However, we find that governmental institutions appear to be primarily accountable towards donor organizations who outweigh the domestic stakeholders with a share of 14.1%. These results are basically determined by the access structure of the political support network. Both the society and donor organizations show a similar pattern in GA-Lobby with 12.4% and 15.1%, respectively, whereas the industry is comparatively more engaged in the provision of expert knowledge (GA-Belief).

This finding implies that donor organizations are better able to control governmental actions and policy choices which might correspond to the concepts of donors rather than reflecting the desires of domestic stakeholder organizations. How-

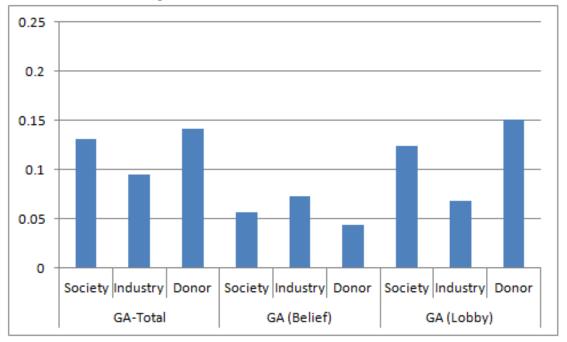


Figure 6.8.: Governmental Accountability

ever, even though donor organizations hold the largest share of political control in Ghana - which might undermine ownership of national stakeholders indicating a donor-led policy process - the superior position within the CAADP policy domain does not necessarily imply a conflict of interests between the three stakeholder groups. In how far the inclusion of stakeholders in the policy process decreases governmental capture or increases political consensus among the political actors is subject to analysis in the next two subsections.

6.4.2. Capture

Governmental capture corresponds to the concept that governmental political actions and policy choices are biased towards the particular interests of organized social groups at the expense of the general public. We follow a two step procedure to determine the extent of a possible interest bias. In the first step we calculate the weighted mean interest bias towards a particular policy issue to display the general over- or underrepresentation of a particular policy issue.

Figure 6.9 shows the ten different policy concerns as surveyed in the policy preference part of the elite questionnaire (see chapter 5). Stakeholder organizations were asked to distribute 100 points among the mentioned policy concerns according to their relative interest. Table A.6 in the Appendix lists the ten policy issues as well as the group and total mean interest in each issue. Taking the mean interest as a proxy for the policy concern of the general public we calculate the difference of an organization's interest to the mean interest per issue and weight this difference with the organization's political power. Figure 6.9 represents the total deviation from the general interest. Please note, that Figure 6.9 displays only relative values and hence no direct conclusion can be drawn on the general

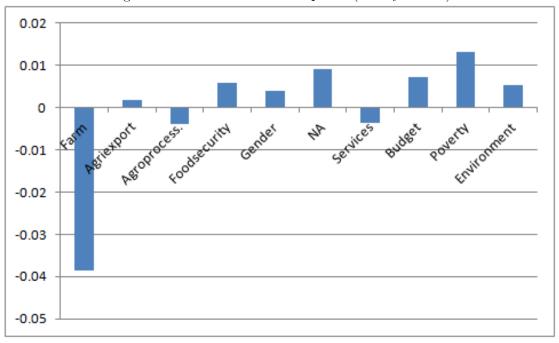


Figure 6.9.: Governmental Capture (Policy Issues)

importance of a particular policy issue. For instance, if the mean interest by stakeholders is high in a particular issue and stakeholders do not differ much in their interest in this issue we find a comparatively small value. On the other hand, even if the general interest is quite small we may identify large values if stakeholders have strong opposing interests. According to our proposed measurement of general capture, two options arise causing the performance of total deviation. Taking the mean as the general public's policy interest may in fact overstate the importance of a policy issue if few political actors put particular emphasis on this issue whereas the majority of stakeholders show only moderate interest. This would result in a general negative bias as most of the actors yield a negative value in the mean-difference. The other option stems from the distribution of political power and is the result of particular powerful actors being comparatively more (less) interested in a certain policy issue than actors with equal or less political power. As our analysis aims at the identification of policy issues that are biased towards particularly powerful actors, we consider our approach valid for two reasons: First, the mean interest as a proxy for the general public is rational as we regard the stakeholders included in our analysis as representatives of the CAADP policy domain and thus the mean interest portrays the general policy concern as a result thereof. Second, it is not irrational for political actors to emphasize specific policy issues while showing no interest in other subjects at all. This holds true especially for contradicting issues like the welfare of agricultural producers versus the welfare of the industry or market services sector.

The welfare of farmers (Farm) clearly yields a negatively bias in Ghana indicating that the majority of stakeholders show less interest in the well-being of agricultural producers. This somewhat unexpected finding is basically the result of the combination of the two scenarios mentioned above. While the majority of stake-

holders show moderate interest in the farmer's well-being, we identify a few actors who regard this policy issue as particularly important, pushing up the mean interest which leads to negative values in the mean-difference for most actors. Among these are for instance IFPRI, which is only interested in two policy issues according to our survey results, i.e. the welfare of agricultural producers (90%) and food security (10%). Other organizations advocating for the agricultural producers are the farmer's interest group APFOG (80%), the donor organization IFAD (70%), and the public agencies COCOBOD (57%) and GIDA (50%). In comparison, the majority of stakeholders state a relative interest of only 14-19%. However, we identify a second channel that reinforces the negative bias, i.e. the distribution of lobbying power. The executive is comparatively less interested in the well-being of farmers' with values of 13% (MOFA) and 10% (other ministries) while holding a combined share in total power of 43%. The comparatively strong negative bias against the welfare of farmer's is particularly interesting as we identify a positive bias in favor of poverty reduction (Poverty).

While the bias in the income of the agricultural export and the food processing sector as well as food security in general is negligible, the industry sector is captured by the ministries (except MOFA).

In the second step we incorporate a directional parameter to take account of the interests of vested groups in regard of four global policy dimensions favoring either the rural or urban, the poor or the rich population. However, as the two dimensions 'pro-urban' and 'pro-rich' basically constitute the anti poles to 'pro-rural' and 'pro-poor' in our setting, respectively, we only depict the latter as can be seen in Figure 6.10.



Figure 6.10.: Governmental Capture (Total)

We account for country specific differences while mapping the ten policy issues according to the global dimensions 'pro-poor' and 'pro-rural' which leads to simi-

lar values for both indices in the case of Ghana. Figure 6.10 displays governmental capture towards or against the rural and the poor population in Ghana both in total as well as by stakeholder group. The total capture index represents the general bias and includes the weighted interest of all actors, whereas the indices on group level represent a stakeholder group's interest against the general public. The capture indices on group level are nothing else than the disaggregated total capture indices, but provide valuable information by enabling us to identify the stakeholder groups who determine the direction of governmental capture.

We find a considerable bias against the rural (and poor) population in Ghana as indicated by the total capture index of -4.8%. While donor and research organizations as well as farmer interest groups are pro-rural, the capture in favor of the urban and rich population, respectively, is primarily determined by the strong position of the executive and to a lesser extent by the industry sector (IG:NA).

6.4.3. Ownership

Political ownership corresponds to the concept that a society identifies with a specific policy and is committed to accomplishing the envisaged policy goals. To measure political ownership implied by stakeholder participation, we calculate the level of political consensus resulting from political communication and lobbying activities. The higher the level of consensus achieved through stakeholder participation, the higher the political ownership of the society in the decided policies will be. Whether communication enables consensus building among actors depends on the embeddedness of actors with clashing beliefs in the communication network and the openness of actors to other opinions, i.e. the level of own control. Firstly, consider that the communication network is a connected component. A connected component says that any two agents are connected to each other by direct or indirect communication ties. Assuming our belief formation process would now result in a perfect consensus (Golub & Jackson 2009). In practice the assumption of the communication network as a connected component cannot be hold easily. Communication is actually structured and restricted, e.g. agents communicate directly only with a small subset of the total population. If these subsets of the population have clashing beliefs, communication will not enable consensus building among elite members. Further, it follows from equation 5 that the trust actors put in the beliefs of other actors determines the level of consensus within reach by communication. Assuming implies that communication still converges to an equilibrium, but agents will hold heterogeneous policy positions. In our more general model, actors might differ regarding the relative trust they put in their own position and on that of other actors, respectively. For example, different levels of own control might reflect an actors' information level. Poorly informed actors might put more weight in the communicated positions of other actors than experts. Consequently, consensus building is not self-evident in our model but relies upon country specific attributes of the elite communication network.

Figure 6.11 displays the conflict indices including lobbying and communication (γ^*) and without lobbying and communication $(\gamma^\#)$.

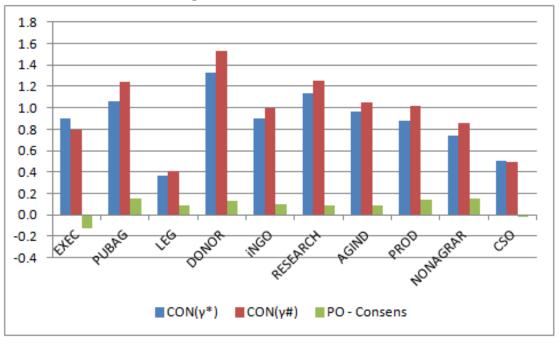


Figure 6.11.: Political Conflict

As indicated by figure 6.11, participation increases the level of consensus for almost all stakeholder organizations whereas the ministries and to some extent also the civil society organizations lose from the involvement of stakeholder organizations. The negative value for the executive is intuitive and a direct consequence of the change in the final policy (γ^*) due to the participation of stakeholder organizations. In the scenario without lobbying and political communication, the final policy decision $(\gamma^\#)$ is only determined by political agents with original voting power, i.e. the ministries and the president in our scenario of legislative decision-making. Including political participation of stakeholders leads to a change in the final policy and thus increases the difference to the ministries' ideal policy position. Interestingly, though negligible small, civil society organizations yield a negative value in PO-Consensus.

Figure 6.12 displays the resulting ownership indices as formulated in chapter 4.3. As before, we aggregate CSOs, iNGOs, and farm interest groups as representatives of the *Society*, and include the *Industry* and *Donor* organizations as benchmark stakeholder groups.

According to our definition of ownership, the political conflict of donors decreases comparatively more by including political communication and lobbying. Hence, donor organizations yield a higher level of consensus (13.1%) than national stakeholders of the society (9.4%) and industry (11.4%), indicating a comparatively high political ownership of donor organizations in the decided policies.

To adequately assess the performance of political stakeholder groups in the CAADP policy process we provide a comparative perspective in chapter 9 by first contrasting the final results of the country case studies with each other. We then apply the derived indicators to estimated networks which enables us to validate and to check for robustness of the empirical network data.

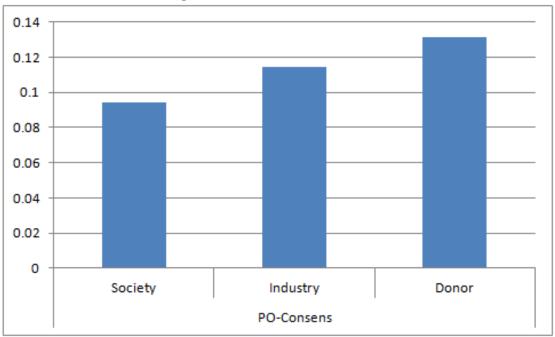


Figure 6.12.: Political Ownership

Comparing the results of the three countries with each other may yield interesting insights as it allows us to draw conclusions from the different participation indicators and the distinct levels of political and economic development. With the analysis of the structural properties of influence and participation in the policy process in Ghana in this chapter we covered already the most advanced country of our case studies. The next chapter (ch. 7) presents the case study of Senegal which reflects the midfield before we continue with Uganda in chapter 8.

Chapter 7.

Senegal

Senegal is the westernmost country on the African continent. The Atlantic Ocean marks the western border, to the north you find Mauritania, to the east is Mali, and Guinea and Guinea-Bissau are located in the south of the country. Furthermore, within Senegal lies the small country of Gambia (Central Intelligence Agency, 2013). Senegal is divided into 14 administrative regions, which can be seen in Figure 7.1. The largest city and also the country's capital is Dakar, which is located on the Cap-Vert peninsula at the westernmost tip of the country. 14.1 million people live in Senegal (2013), it is hence the least populated country compared to Ghana and Uganda. Just like in many other countries in Africa, in Senegal live many different ethnic groups, most of them speaking their own tribal language. The biggest ethnic group are the Wolof with 43%. While French is the official language in Senegal, Wolof is the language that is mainly spoken among the people, especially in Dakar. The Pular are the second largest group with 23.8% followed by the Serer with 14.7%. The remaining ethnic groups are smaller, with population shares of less than 5%. The GNI per capita (Atlas method) was US\$ 1,050 and the PPPpc was US\$ 2,210 in 2013, just like Ghana, Senegal is considered a lower middle income country (The World Bank, 2013). The economy strongly relies on agriculture, 14.9% of the GDP are due to the primary sector and 77.5% of the labor force are occupied in the sector. The dominant agricultural products are peanuts, millet, corn and rice. Other industries are phosphate mining and fertilizer construction. Additionally due to its location, another important sector is commercial fishing. The GDP growth rate was 3.7% in 2012 and is close to the average GDP growth rate in Sub-Saharan Africa. Although GDP growth is expected to increase in the future in Senegal, it will not be sufficient to reach the same growth rates as Sub-Saharan Africa as a whole. The mortality rate of under-fives in Senegal is with 55 per 1,000 births comparatively high, whereas the maternal mortality rate of 320 per 100,000 live births is the lowest compared to Ghana and Uganda. Prevalence of HIV accounts to only 0.5% of population ages 15-49 and is the lowest in all three countries. Only 66% of the population between 15-24 years is literate and Senegal's labor market bears an unemployment rate of 10%. Senegal is among the oldest democracies in Africa (Olympio, 2012) and also often classified as one of the showpieces of African democracies (Galvan, 2001). Marshall et al. (2012) agree and classify Senegal on the Polity IV scale as a democracy with a polity score of 7. Additionally, Senegal is considered to be a free country with a political rights and civil rights rating of 2. The civil rights ranking just improved from 3 to 2 since the last survey in 2013 (Freedom House, 2014), which is mainly due to the peaceful change of government in 2012.

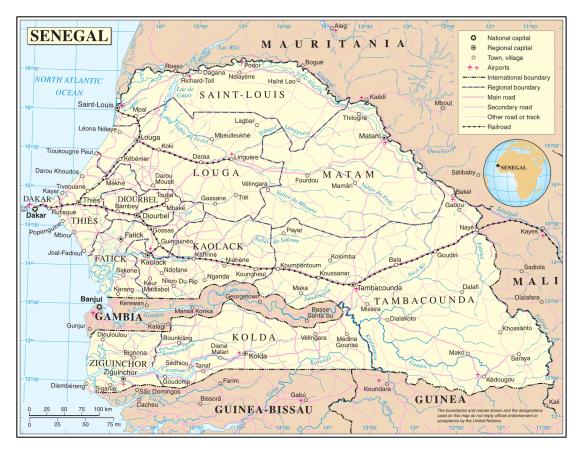


Figure 7.1.: Administrative Regions in Senegal Source: Map No. 4174 Rev. 3, January 2005, UNITED NATIONS

7.1. Relevant Organizations in the CAADP Policy Domain

Table A.10 in the Appendix lists the 46 political actors in Senegal, the corresponding type of organization, as well as the degree centrality measures for all three networks. The reputation network is an adjacency matrix that depicts the nominations of political actors that are perceived as especially influential in the formulation of agricultural policy programs by stakeholders. The indegree centrality measures the prominence of actors in a directed network and relates in our case to the influence held by political actors in the agricultural policy domain of Senegal. Summarizing an organization's received nominations and standardizing by the number of maximal possible nomination yields the indegree centrality whereby self-nominations are excluded.

With an average indegree of 0.9 the group of supranational organizations has the highest reputation in Senegal, followed by donor organizations (0.81) and the executive (0.77). As opposed to this, civil society organizations and interest groups are less prominent in the agricultural policy domain which indicates a top-down political process (see Table A.8 in the Appendix). On individual level, the Ministère de l'Economie et des Finances (MEF) is the most influential actor in Senegal (0.93), followed by the Ministère de l'Agriculture et de l'Equipement Rural (MAER), the supranational Communauté économique des états de l'afrique de l'ouest (CEDEAO), and Senegal's leading think tank Institut Sénégalais de Recherches Agricoles (ISRA) with an indegree of 0.91 each (table A.7 in the Appendix).

7.2. Identified Network Structures of Political Participation in Senegal

As for Ghana, we perform blockmodel analysis to identify the network structure of political participation in Senegal. Blockmodel analysis is a method of positional analysis based on structural equivalence. The idea behind positional analysis is to simplify the information in a network data set. Blockmodel analysis allows us to identify actors that have the same patterns of relation to all other actors in the network. Actors that are structural equivalent have identical entries in rows and columns of the sociomatrix and are aggregated into blocks. The result is a reduced graph of the original network that consists of blocks that depict the underlying structure within the network. Application to quantitative network data of political communication and political support enables us to identify the embeddedness of stakeholders in political communication and lobbying mechanisms.

7.2.1. Political Communication

Analyzing the exchange of expert information in the communication network yields some interesting insights. The central position is occupied by the Ministry of Agriculture (MAER) which constitutes the only significant connection with the large political periphery. Furthermore, we identify two groups that are in close collaboration with the MAER and take up a broker position to the remaining stakeholder organizations. The underlying structure within the communication

network is further validated by the results of the reputation network as the average indegree centralities per block correspond with the status of the blockmembers in the reduced graph. Figure 7.2 displays the underlying structure of political communication in Senegal. The reduced graph consists of six blocks. The blocksize reflects the number of actors in the respective block. Sender and receiver of expert information are depicted by arcs representing the existence of established communication ties between blocks. Edge-weights are based on the corresponding density between or within blocks and range from dark gray if communication is very dense to light gray if only few actors relate to each other in providing information on agricultural policies. In order to better identify certain communication patterns, we based relational patterns of the reduced graph on the mean block density, i.e. we omit ties between and within positions if the corresponding density is below the mean.

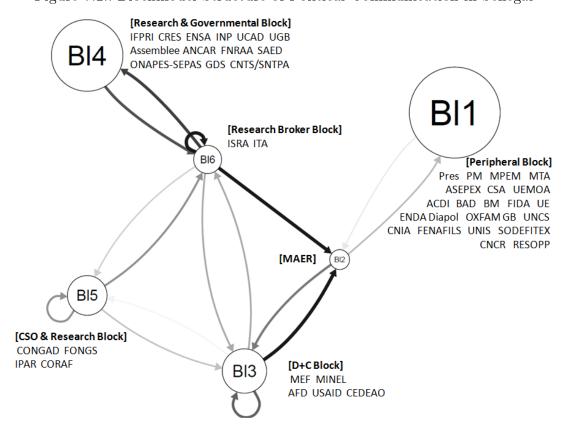


Figure 7.2.: Blockmodel Structure of Political Communication in Senegal

Table A.11 in the Appendix lists the corresponding blockmemberships. The political core (BL2) is determined by the Ministry of Agriculture (MAER). It is the only link to the political periphery (Bl1) that is comprised of almost 50% of actors in our sample and constitutes the largest block in our analysis. The stakeholder organizations in Block 1 are very heterogeneous and are characterized by very sparse exchange of expert information. Interestingly, among the actors in the political periphery we identify institutions that are perceived as especially influential in the reputation network like the supranational UEMOA or donor organizations such as the European Union (UE) and the World Bank (BM). Fur-

thermore, MAER receives expert information by two research organizations, ISRA and ITA, that occupy a technical broker position (Bl6) and are both among the most influential actors in Senegal. They constitute the only connection to Block 4 that is comprised of research and governmental organizations to which they share a very close relation in terms of expert information exchange. In particular, this means that both ISRA and ITA channel the information received from research and governmental organizations to the ministry of agriculture. Like the technical broker, Block 3 is comprised of five actors that were already identified as extremely influential in the reputation network. They establish the second broker position in the reduced graph. However, unlike the Research Broker Block, the political broker position of Block 3 is characterized by a heterogeneous group of actors. It comprises the executive (MEF, MINEL), supranational (CEDEAO) and donor organizations (USAID, AFD) who are engaged in development and cooperation (D&C). The two peripheral blocks (Bl4, Bl5) are mainly comprised of research organizations. However, Block 5 includes with CONGAD and FONGS two influential civil society organizations and has established communication ties to both broker blocks, as opposed to Block 4 which is mainly determined by research organizations and public agencies and is linked to the technical broker block.

Table 7.1 displays the corresponding blockdensities and provides a more detailed picture of the structural properties of political communication in Senegal. Please note, that while the reduced graph in Figure 7.2 displays only the main communication paths in the expert network based on the average blockdensity, the density table reveals the complete picture of expert information exchange.

Table 7.1.: Density of Empirical Blocks: Expert Information

	Peripheral	MAER	D&C	Research	CSO-RES	Broker
Peripheral	0.09	0.57	0.25	0.08	0.24	0.38
MAER	0.67		0.80	0.31	0.50	0.50
D&C	0.31	1.00	0.85	0.31	0.55	0.70
Research	0.16	0.38	0.37	0.49	0.33	0.88
CSO-RES	0.35	0.50	0.65	0.46	0.75	0.75
Broker	0.45	1.00	0.70	0.92	0.62	1.00

The missing intra-blockdensity observed for MAER (Bl2) is the result of the number of blockmembers. As we do not allow for self-ties in the actor-actor matrix of the communication network the intra-blockdensity is omitted. Even internally, peripheral organizations are only weakly connected to each other. This is particular the case for the Peripheral Block 1 in which the information exchange is almost non-existent as indicated by a blockdensity of only 0.09. The political periphery marks the largest group of stakeholders and includes donor organizations, governmental institutions, and interest groups alike and thus constitutes not only the lowest absolute value given its size. Political communication in Senegal is determined by the D&C and Research Broker Block (Bl3, Bl6) that exhibit the highest densities both in receiving (column) and sending (row) expert information. Both blocks mediate between stakeholder organizations and the MAER. However, even though actors in the political periphery (Bl1) are remote and have only limited

access to the remaining actors in the agricultural policy domain at least 57% have direct access to the MAER.

7.2.2. Lobbying

In addition to the expert network of political communication, one of the key components of the network approach is the structure of political support. In democracies stakeholder organizations are representatives of their members and their interests. Therefore the policy position of such a group is highly connected with the resulting welfare for their members. Thus, a major role of stakeholder organizations in democracies is mediating their clientele's interest to politicians, i.e. trying to influence policy or politicians to generate as much welfare as possible for their members. Obviously, politicians won't support a stakeholder organization's position without any reward. On their part they expect in return the political support of members of the stakeholder organization. However, political agents also represent their electorate in parliament. Therefore, political agents are interested to find political solutions supported by a majority of their electorate.

The underlying support network, other than the communication network, is determined by mutual benefit of the respective actors in form of interest mediation and support seeking. We have to differentiate between political actors (i.e. EXEC, LEG) who receive support and advocate the stakeholders' interests in return, and the stakeholders who send political support in return for a representative of their interest. As not all stakeholders have direct access to political actors they approach a broker to represent their interests. Thus, we do not necessarily observe a clear politician-stakeholder structure.

Figure 7.3 displays the main lobbying paths in Senegal. The reduced graph consists of six blocks with the blocksize reflecting the number of actors in the respective block. Sender and receiver of political support are depicted by arcs representing the existence of political exchange between blocks. Edge-weights are based on the corresponding density between or within blocks and range from dark gray if support is very dense to light gray if only few actors relate to each other. As before, we based the relational patterns of the reduced graph on the mean blockdensity, i.e. we omit ties between and within positions if the corresponding density is below the mean in order to better identify the patterns of political support.

The reduced graph of political support reveals two stakeholder organizations who are central in the lobbying profile of Senegal's agricultural policy and occupy a single-actor block each, i.e. USAID (Block 4) and ISRA (Block 6). Furthermore, we identify two blocks that are located in the periphery of political support. The larger Political Periphery Block 3 is engaged in the exchange of political support in the policy domain only indirectly via USAID and ISRA. We do not observe any significant lobbying activities among the stakeholders in Block 3, as opposed to the second peripheral Block 5. The Peripheral iNGO Block has no visible connection with actors from other blocks but rather operates among its own as indicated by the pronounced self-tie. In addition, the two blocks that participate actively in the exchange of political support with the center of lobbying do so in different ways. While the Food and Agriculture Block 2 appears to be a net-

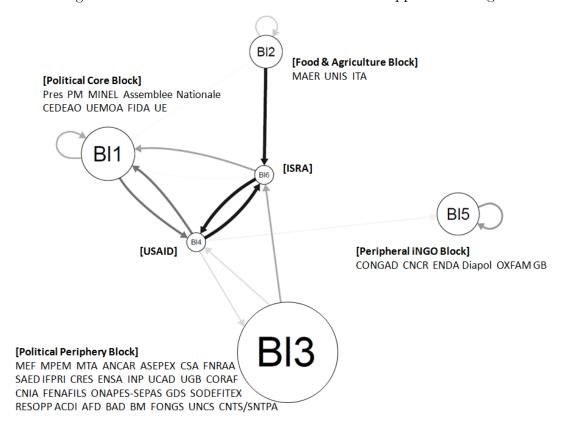


Figure 7.3.: Blockmodel Structure of Political Support in Senegal

sender of political support to ISRA, actors in the Political Core Block 1 receive political support from the Food and Agriculture Block and are engaged in mutual exchange of political support with USAID. Table 7.2 provides detailed insights into the lobbying structure of Senegal. Surprisingly, the center of political support is determined by a donor (USAID) and a research organization (ISRA), respectively. Among others, both ISRA and USAID were already assigned broker positions in the communication network. Additionally, they were identified among the most influential actors in Senegal according to the calculated indegree centralities in the reputation network. However, we would have expected that the central position within the political support network is occupied by the leading ministries that determine agricultural policy in Senegal, i.e. MAER and MEF.

Table 7.2.: Density of Empirical Blocks: Political Support

		e e	1		1.1	
	Pol.Core	Food	Peripheral	USAID	iNGO	ISRA
Pol.Core	0.59	0.25	0.08	0.75	0.15	0.38
Food	0.38	0.50	0.32	0.33	0.07	1.00
Peripheral	0.13	0.11	0.06	0.46	0.11	0.61
USAID	0.75	0.33	0.46		0.40	1.00
iNGO	0.15	0.07	0.10	0.20	0.65	0.20
ISRA	0.62	0.33	0.36	1.00	0.20	

7.3. Political Influence and Power

According to our network model of political belief updating, communication structures determine political influence among governmental and non-governmental organizations. Hence, at a descriptive level, an analysis of the ways in which organizations are influenced by each other is of interest. Beyond a descriptive analysis, it is especially interesting to evaluate the impact of political influence structures on different aspects of political performance. For example, evaluating the extent to which the final policy positions of governmental organizations are influenced by the political views of non-governmental organizations by measuring the effective participation using political power indices. Or, evaluating the extent to which central organizations take political leadership vis-à-vis civil society in a top-down political process using network multipliers. Moreover, a high political influence exerted by donor organizations would characterize a donor-led policy process, which might undermine political ownership if national stakeholder organizations feel ignored. Furthermore, an analysis of the extent to which the identified political influence and power structures reflect the political expertise of the involved governmental and non-governmental organizations is of interest. To assess these interesting questions, we provide a descriptive analysis of the identified political influence and power structures in the following section, and we evaluate the impact of the identified structures on political performance in the next section. The network multipliers derived from political communication, as described in section 3.2, are the centerpiece of our political influence model.

7.3.1. Political Influence

Table 7.3 displays the communication network multipliers that were calculated for specific categories of governmental and non-governmental organizations. The network multipliers presented in Table 7.3 correspond to the aggregated weight of the policy positions of the column category in determining the final policy position of the average individual row category. For example, the first row represents the aggregated influence of the column category on Senegal's executive (EXEC). The final policy position of the executive after communication is determined to 68% by its own initial position. The aggregated weight of donors' initial position (DON) on the executive's final position is 7% compared to only 2% for the civil society organizations (CSO), whereas research organizations exhibit a comparatively high influence of 14%.

Like in Ghana, the relatively high network multipliers on the diagonal are the result of the own control stated by the respective stakeholder organizations. The own control is an indicator for the trust in external information, i.e. the relative importance of an actor's own expertise versus external information received from other organizations. An own control of 1 indicates that the actor relies on her expertise exclusively whereas an own control of 0 is indicative to the dependence on external information.

Research organizations (RES) exhibit a high own network multiplier of 86% as expected, indicating that they consider themselves as technical leaders with high political knowledge. In contrast, the executive (EXEC) and legislative (LEG)

-	Table 1.5 Network Martipliers per Group. Expert information									
	EXEC	LEG	PUB	SUPR	DON	iNGO	RES	AG	PROD	CSO
EXEC	0.68	0.00	0.04	0.03	0.07	0.00	0.14	0.02	0.01	0.02
$_{ m LEG}$	0.08	0.50	0.03	0.01	0.02	0.00	0.30	0.01	0.00	0.04
PUB	0.10	0.00	0.61	0.01	0.04	0.01	0.17	0.03	0.01	0.03
SUPR	0.06	0.00	0.02	0.72	0.03	0.02	0.13	0.00	0.00	0.01
DON	0.09	0.00	0.06	0.02	0.61	0.00	0.17	0.02	0.02	0.02
iNGO	0.03	0.00	0.01	0.01	0.02	0.61	0.24	0.02	0.01	0.06
RES	0.03	0.00	0.03	0.01	0.03	0.01	0.86	0.01	0.00	0.02
AG	0.08	0.00	0.05	0.01	0.04	0.01	0.26	0.47	0.02	0.07
PROD	0.03	0.00	0.03	0.00	0.01	0.00	0.12	0.02	0.77	0.02
CSO	0.04	0.00	0.03	0.01	0.03	0.02	0.18	0.02	0.01	0.66

Table 7.3.: Network Multipliers per Group: Expert information

report a comparatively low own control. Except for the group of agricultural producers (PROD) and supranationals (SUPR) who obtain own network multipliers of 77% and 72%, respectively, the other stakeholder groups are more open to external information. Especially the legislative and the agricultural industry (AG) rely on expert information shared by other stakeholders as indicated by own network multipliers of 50% and 47%, respectively. Civil society organizations (CSO) obtain a value of 66% and are thus close to the executive (EXEC, 68%) and hence rank higher than public agencies (PUB), donor organizations (DON), and iNGOs who are at par with 61%. This is particularly interesting, as we would have assumed that donor organizations and public agencies put more trust in their own information. Both stakeholder groups are regarded as technical leaders and therefore should be less open to external information.

As before, we derive influence profiles to identify influential organizations and describe the extent to which other organizations influence the initial policy position of an organization. Formally, influence profiles can be described by the vector of relative network multipliers that operate as an influence field on an organization. Based on our belief formation model, the influence field operating on an actor is determined by her local communication structures. Overall, we find that research organizations exhibit the highest influence in the agricultural policy domain, followed by governmental actors and international organizations.

We identify three larger clusters of similar size (i.e. Cluster 1 - 3) that comprise with 40 out of 45 actors the vast majority of political stakeholders included in our sample, whereas Cluster 4 contains three and Cluster 5 and 6 only one stakeholder organization each⁶. However, the number of clusters has no significant impact on the resulting membership for clusters 4 to 6 as UNCS (Cluster 6) is assigned to a cluster for its own already in the 3-cluster solution. Table A.11 in the Appendix lists the clustermemberships accordingly.

Cluster 1 and 2 are equally comprised of actors representing the executive, donor and research organizations. Cluster 1 further includes the only two iNGOs and

⁶Please note, that the cluster analysis comprises only 45 instead of 46 actors due to data cleaning issues. As IFPRI stated an own control of 100% the resulting influence profile was not computable. However, this affects the passive influence profile only and IFPRI is still included in the RESEARCH group of actors exerting influence on the remaining 45 actors.



Figure 7.4.: Influence Profile in the CAADP Policy Network in Senegal

supranational institutions and appears to be internationally oriented as opposed to cluster 2 which contains all four public agencies and two civil society organizations and can be categorized as nationally oriented. The majority of actors in clusters 3 and 4 are interest groups engaged in the promotion of the agricultural sector and thus constitute the two agricultural clusters in our analysis. Cluster 5 (RESOPP, IG:PROD) and 6 (UNCS, CSO) consist both of one single actor only are thus negligible for further analysis.

We aggregated the relative influence of stakeholders according to their institutional affiliation (see Table 5.1). We differentiated between agricultural AG (i.e. IG: AGIND and IG: PROD) and non-agricultural NA (i.e. CSO) stakeholder organizations. Figures 7.4 and 7.5 indicate that research organizations exert by far the highest influence on other organizations with an average influence share of 43%. Governmental and international organizations have only moderate impact with an average influence of 26% and 16%, respectively. Interestingly, the civil society (8%) slightly exceed the agricultural interest groups who only account for an average influence of 7%.

A more detailed analysis of the influence of governmental institutions reveals that the main influence on other organizations is primarily exerted by public agencies with an average of 10%. The two leading ministries that determine agricultural policy in Senegal (i.e. MAER and MEF) differ substantially in their influence on other stakeholders. We included two political agents in our analysis, i.e. the Office of the President (PRES) and the Prime Minister (PM). While the President exerts an average influence of 2.5%, the Prime Minister and the legislative (i.e. the Assemblee Nationale) have very limited influence in the agricultural policy domain in Senegal. A comparison of the average influence across clusters reveals further interesting characteristics.

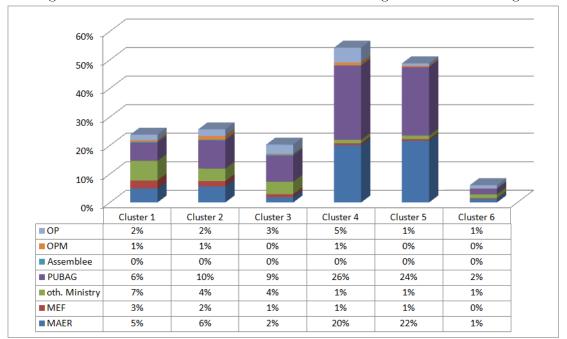


Figure 7.5.: Relative Influence of Governmental Organizations in Senegal

Taking a closer look at figure 7.4 we find that the influence profiles of cluster 1 and cluster 2 are quite similar. However, it is the slight variation in the influence field and the structure of the cluster-memberships that distinguish both clusters. As already mentioned, cluster 1 can be regarded as an internationally oriented group of actors whereas cluster 2 relates to stakeholders linked to national policy issues. This is also reflected in the influence profiles of both clusters to a certain degree. The main difference between both clusters lies in the composition of stakeholder organizations and the individual average influence of these. Both clusters are comprised of three members of each the executive, donor and research organizations. Cluster 1 is comprised of the President, the Prime Minister, and the Minister for Economic Affairs and Finance (MEF) who exhibit an average influence of 2.6%, 0.7%, and 1.8%, respectively. Cluster 2 contains with the Ministère de l'Agriculture et de l'Equipement rural (5.8%), the Ministère de l'Élevage (3.1%), and the Ministère du Commerce, de l'Industrie et du Secteur Informel (1.2%) the most influential actors of the executive in Senegal. The same holds true for research organizations in cluster 2, which include with ISRA (8.5%) and IFPRI (7.3%) the two top-level think tanks in Senegal. While cluster 1 contains with the Agence Française de Developpement (3.5%) the most influential donor, the Banque Africaine de Developpement (BAD) and Fonds International pour le Developpement Agricole (FIDA) have only limited average influence of 0.6\% and 0.4\%, respectively. This is in contrast to the three donor organizations included in cluster 2, i.e. the World Bank (BM), European Union (UE), and USAID, who reach average influence values of 2.4%, 2.6%, and 1%, respectively. Furthermore, cluster 1 contains all iNGOs and supranational organizations in our data-set whereas cluster 2 includes the majority of public agencies and civil society organizations. Thus, we conclude that cluster 2 is not only comprised of the

most influential actors (i.e. the executive, donors, and research), but it also includes with the public agencies and civil society organizations nationally oriented stakeholder organizations as well. Cluster 1 comprises iNGOs and supranationals and is more internationally oriented. This composition is also reflected in the influence profiles of both clusters. Especially the shift from cluster 1 to cluster 2 in the percentage share of International Organizations (21% to 17%) to the agricultural sector (6% to 9%) is worth noting. The civil society (NA) and the agricultural sector (AG) are with 9% and 8%, respectively, at par with the group of international organizations (17%) which indicates a balanced policy process given cluster 2 incorporates the leading ministries and stakeholder organizations that determine agricultural policy in Senegal. The influence of governmental institutions increases by two percentage points from 24% to 26%, which is primarily determined by public agencies (6% to 10%) whereas we observe a decrease in the influence exerted by other ministries. Interestingly, we note an increase of MAER from 5% to 6% while MER decreases by one percentage point.

Cluster 3 is primarily characterized by stakeholders engaged in the agricultural sector and research, but also includes two governmental institutions and one actor of the civil society. Research organizations and civil society organizations denote an increase in the influence exerted on cluster 3. The impact of governmental institutions and international organizations is reduced significantly. Especially the MAER looses and accounts for only 2%, whereas the Office of the President yields 3%.

Cluster 4 to 6 are comprised of only five actors in total, thus the influence profiles are very specific and on an individual level so that a general message is neither feasible nor meaningful. All three clusters exhibit extreme values in their influence profiles and are either influenced to a very high degree (cluster 4 and 5) or very low degree (cluster 6) by governmental institutions which is not representative of our sample. All five actors (i.e. UNIS, ACDI, and CSA in cluster 4, RESOPP as cluster 5, UNCS as cluster 6) are located in the large peripheral Block 1 (see 7.2). RESOPP and UNCSO are furthermore among the least influential actors in our sample with an average influence of 0.5% and 0.1%, respectively, but also happen to be among the actors with the lowest nominations in the reputation network (see Table A.10).

7.3.2. Political Power

To determine the impact of these specific influence structures on political performance we follow the procedure described in chapter 6 and combine the network multipliers with political decisionmaking power to derive the total political power of organizations.

Similar to Ghana, Senegal is a presidential democracy where legislative regulations are decided by the parliament under a simple majority rule. By constitution, the president lacks a binding veto power and the government has no binding agenda-setting power vis-à-vis the parliament. Nevertheless, in political practice, the parliament exerts no significant legislative power and is reduced to a pure acclamation machine; the real legislative power rests in the government. Accordingly, we constructed relevant legislative games, accounting for the dominant role of

governmental institutions as legislative norms.

In particular, we assumed that agricultural policy in Senegal is decided following the principle of departmental responsibility, i.e. the Ministère de l'agriculture et de l'equipement rural (MAER) has agenda-setting power vis-à-vis the cabinet including the president, and the cabinet decides with a simple majority. In the power scenario PRES, we assume that the president has agenda-setting power vis-à-vis his cabinet. In the contrasting scenario DUO the president and MAER share agenda-setting power. In the three scenarios MAERPARL, PRESPARL, and DUOL we assume that legislative decisionmaking in Senegal is furthermore characterized by leadership of the Assemblee Nationale in combination with the aforementioned scenarios. Table 7.4 summarizes the calculated Banzhaf indices for the different constructed legislative scenarios.

	MAER	PRES	DUO	MAERPARL	PRESPARL	DUOL
Pres	0.1220	0.2683	0.2581	0.0962	0.2115	0.2051
PM	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MAER	0.2683	0.1220	0.2581	0.2115	0.0962	0.2051
MINEL	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MPEM	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MEF	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MTA	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
${\it Assembl\'ee}$	0	0	0	0.2115	0.2115	0.2051

Table 7.4.: Banzhaf Power Indices

Belief and Lobbying Power

To analyze how much belief power an actor gains from her inclusion into the elite's communication network, we combine the network multipliers with Banzhaf-power indices. Accordingly, we combine the support network multiplier with Banzhaf-power indices to assess an organization's level of lobbying power. Figure 7.6 displays the resulting political power from access to expert communication and political support.

The belief power represents the political influence of an actor by exchanging expert information in the communication network and is a result of belief updating. The lobbying power results from an actor's access structure in the support network. The better access an interest group has to powerful legislators, the more successful are the lobbying activities of this organization. Following this theoretical approach we expect to find a pattern of power distribution that reflects the institutional affiliation of elite members in the CAADP policy domain like we did in the case study of Ghana (ch. 6). For example, research organizations are clearly a provider of knowledge and expert information and therefore are expected to have greater political influence resulting from knowledge provision than from successful lobbying activities based on the access structure in the support network. Donor organizations on the other hand, are expected to have relatively greater lobbying power.

 $^{^{7}}$ In this study we assume DUO as the underlying scenario.

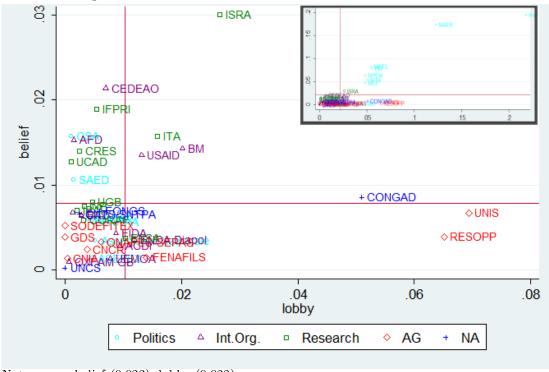


Figure 7.6.: Political Power: Lobbying and Communication

Note: mean belief (0.022), lobby (0.022); mean w/o EXEC: belief (0.008), lobby (0.010)

Figure 7.6 displays the resulting political power from access to powerful legislators in the expert communication and political support network by organization. We include the means of both power indices to create quadrants within the coordinate plane which enables us to identify organizations according to their relative power, i.e. being relatively influential due to either its provision of expert information or successful lobbying activities. Governmental organizations are extremely influential and yield comparatively high values in both belief and lobbying power as can be seen in the small figure in the top right corner. In order to better distinguish the power distribution of non-governmental organizations we exclude the ministries and the office of the president from the scatter plot and adjust the means of belief and lobbying power, respectively.

Interestingly, the distribution of political belief and lobbying power in Senegal confirms our assumption of dependence on the organizational affiliation of political actors only partly. The executive account for the largest share of power due to its original voting power in the legislative game. Located in the top right quadrant the ministries and the president exhibit above average values in both power indices. However, we can clearly identify a comparatively greater share in belief power. Comparing the mean power indices before and after exclusion of the ministries support this finding and show that the executive is responsible for balancing the average political power with mean values of 2.2% whereas the exclusion of the executive yields asymmetrical mean values of the lobbying and belief power of 1% and 0.8%, respectively. The executive clearly dominates the policy process in Senegal and holds shares of 69.2% and 60% in belief and lobbying power, re-

spectively. These very high values are primarily determined by the president who accounts for almost one third of lobbying (21.9%) and belief power (19.4%), followed by the MAER with shares of 12.3% and 17.3%, respectively. The remaining ministries are more diversified in the belief power with individual values between 4.7% (MEF) and 8.3% (MINEL) compared to their degree of lobbying power with an average share of 5%. After excluding the ministries, Figure 7.6 reveals that the vast majority of stakeholder organizations is located in the lower left quadrant indicating that they lack significant access to powerful legislators in the support and communication network. We find research organizations to be primarily engaged in the provision of expert knowledge as assumed. The same holds for international organizations who were expected to be comparatively better linked with political agents in the support network. International organizations are comprised of donor organizations, iNGOs, and supranational institutions. Only four organizations exhibit individual informational influence above average, of which only two exceed the mean lobbying power of 1\%. While this finding is somewhat unexpected, donor organizations typically engage in lobbying activities with the Ministry of Finance (MEF) which itself achieves the lowest power values compared to other governmental actors. Only 50% of the research organizations in the CAADP policy domain of Senegal hold significant power shares. While IFPRI, CRES, and UCAD are located in the top left quadrant indicating that they are valuable distributors of expert knowledge in the communication network, the leading think tank in Senegal, ISRA, yields high shares in both belief (3%) and lobbying power (2.6%), followed by ITA with individual power values of 1.6%. Both research organizations have been identified as central stakeholders in the communication and support network. This further underlines the influential position of both research institutes and is an indication of an evidence-based policy process. Representing the civil society, CONGAD is the only non-agriculture stakeholder organization that participates actively in the policy process as indicated by values above average in belief (0.9%) and lobbying power (5.1%). However, two representatives of the agricultural sector exceed this comparatively large share in lobbying power. As a representative of the agricultural industry, UNIS yields the highest lobbying power (6.9%) among non-governmental organizations followed by the farmers association RESOPP (6.5%) that formed its own cluster in the analysis of political influence.

Total Power

We calculate the total political power following equations (4.1) to (4.3) by combining the political power derived from the lobbying game with the political influence derived from the exchange of expert information.

Figure 7.7 displays the total power on group level. As already implied in the analysis of belief and lobbying power, the major share of total political power is held by the executive (45.2%). The distribution of total power within the executive is rather unbalanced. The president holds the largest share of 16.7% followed by the MAER with 9.7%. The remaining ministries hold an average total influence of only 3.8%. Interestingly, the Ministry of Finance (MEF) obtains the lowest value in total power of all the governmental institutions with only 2.6%. Research

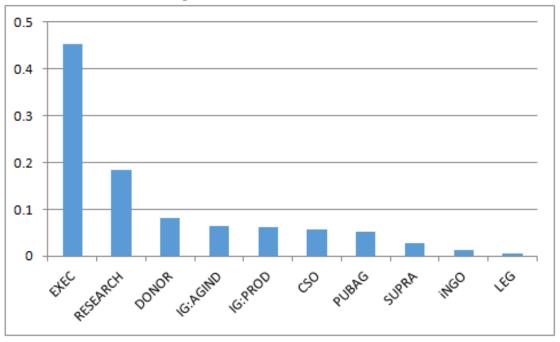


Figure 7.7.: Total Political Power

organizations are the only stakeholder group in Senegal that exhibit more than 10% of total power. Their seemingly strong position within the CAADP policy domain with a total influence of 18.3% is primarily determined by ISRA (5%), IFPRI (2.5%), and ITA (2.5%) compared to the remaining research institutes who hold an average of 1.2%. The comparatively low performance of the remaining stakeholder organizations in combination with the very powerful executive points at a top-down policy process. However, the relatively strong position of research organizations might indicate knowledge-based policies. The application of the participatory network indicators derived in section 3.2 will provide more insights in Senegal's political performance.

7.4. Stakeholder Participation in the Policy Process

So far we concentrated our analysis on the distribution of power and the influence of governmental and non-governmental actors in the policy process. In this section we discuss how the identified network and power structures impact political performance. In particular, we used the derived indicators to measure political accountability, capture and ownership. Unfortunately, we were not able to collect empirical data to apply the knowledge indicator which is therefore not further considered in this chapter. While the accountability indices primarily consist of the political power held by particular stakeholder groups, the measures of capture and ownership additionally take account of the relative importance of certain policies and the ideal policy positions, respectively.

7.4.1. Accountability

The successful functioning of any government depends on the ability of citizens to hold politicians and public administrators accountable for their actions. To measure the degree of accountability we use the sum of the total political power of important stakeholder organizations as a general indicator (GA-Total). Furthermore, to understand how policy network structures interact with constitutional rules, we use the belief power (GA-Belief) and lobbying power (GA-Lobby) as additional sub-indicators to comparatively evaluate the extent of political power due to communication and access structures. In particular, we distinguish three stakeholder groups. We aggregate CSOs, iNGOs, and farmer interest groups as general representatives of the *Society*. To adequately assess the level of accountability held by the society compared to other influential stakeholder groups we additionally include the *Industry*, i.e. NA and agribusiness interest groups, as well as donor organizations (*Donor*).

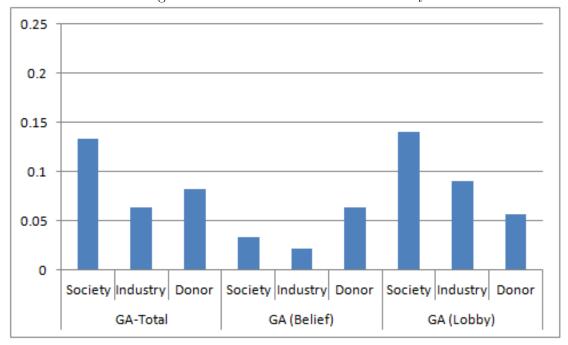


Figure 7.8.: Governmental Accountability

Figure 7.8 depicts the general accountability as well as the two sub-indicators for all three stakeholder groups. In general, the government of Senegal is particularly accountable towards the society (13.3%) whereas donor organizations and the industry exhibit relative shares of only 8.2% and 6.4%, respectively. This implies that the society is better able to control governmental actions and that policy choices correspond to the desires of domestic stakeholders. These results are primarily determined by the successful lobbying activities of the society which has better access to influential actors in the political support network. Interestingly, while the industry exhibits a higher share in GA-Lobby compared to donor organizations, the comparatively higher share of GA-Belief held by donor organizations compensates this lack and ultimately leaves donors better off in GA-Total.

In how far the inclusion of stakeholders in the policy process decreases governmental capture or increases political consensus among the political actors is subject to analysis in the next two subsections.

7.4.2. Capture

Governmental capture corresponds to the concept that governmental political actions and policy choices are biased towards the particular interests of organized social groups at the expense of the general public. We follow a two step procedure to determine the extent of interest bias. In the first step we calculate the weighted mean interest bias towards a particular policy issue to display the general overor under-representation of a particular policy issue.

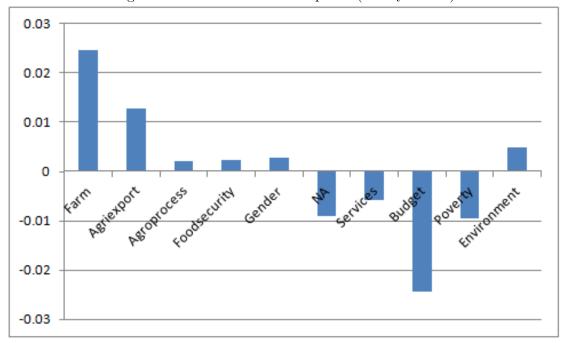


Figure 7.9.: Governmental Capture (Policy Issues)

Figure 7.9 displays the ten different policy concerns as surveyed in the policy preference part of the elite questionnaire (see chapter 5). As for Ghana, we take the mean interest in the respective policy concern stated by all involved stakeholder organizations as a proxy for the general public. Subsequently, we calculate the difference of an organization's interest to the mean interest per issue and weight this difference with the organization's political power. Figure 7.9 represents the total deviation from the general interest. However, as it reflects relative values we can make no direct conclusion on the general importance of a particular policy issue. For instance, if the mean interest by stakeholders is high in a particular issue and stakeholders do not differ much in their interest in this issue we find a comparatively small value. On the other hand, even if the general interest is quite small we may identify large values if stakeholders have strong opposing interests. The total deviation results from two possible situations: the distribution of total political power and biased interests (see chapter 6). We consider

our approach valid for two reasons: First, as we regard the stakeholders included in our analysis as representatives of the CAADP policy domain taking the mean interest as a proxy for the general public is rational. Second, it is not irrational for political actors to emphasize specific policy issues while showing no interest in other subjects at all. This holds true especially for contradicting issues like the welfare of agricultural producers versus the welfare of the industry (NA) or market services sector.

In general, we find a bias towards the welfare of the agricultural sector and against the industry- and service sector. The interest in public goods and poverty reduction exhibit negative values, whereas environmental sustainability yields a positive bias. However, the welfare of the agricultural sector is primarily determined by few powerful actors who regard these policy issues as particularly important whereas the interest of the general public is at a comparatively low level and yields average values between 5.3% (welfare of farmers) and 2.2% (welfare of the agro-processing sector). The strong bias in favor of farmers' income is driven by powerful actors who put this issue high on the agenda like the president and the MAER, ISRA, or RESOPP. As shown in Table A.12 in the Appendix, poverty reduction, public goods, and environmental sustainability exhibit the highest shares in relative interest by the general public with values as high as 32.8% (Poverty), 23.2% (Budget), and 17.2% (Environment). However, all three issues are subject to extreme variation in the importance perceived by stakeholders, even within the same stakeholder groups. In the case of poverty reduction for instance, two members of the executive (MINEL and PM) regard this issue as extremely important and state a relative interest of 50% each, whereas the president is comparatively less interested (10%). Thus the negative values in these three issues are basically the result of opposing interests and the domination of powerful stakeholder organizations in the policy process in Senegal.

In order to identify governmental capture towards organized social groups we incorporate a directional parameter to take account of the interests of vested groups in regard of four global policy dimensions favoring either the rural or urban, the poor or the rich population. However, as the two dimensions 'pro-urban' and 'pro-rich' basically constitute the anti poles to 'pro-rural' and 'pro-poor', respectively, we only depict the latter as can be seen in Figure 7.10.

We account for country specific differences while mapping the ten policy issues according to the global dimensions 'pro-poor' and 'pro-rural'. Figure 7.10 displays governmental capture towards or against the rural and the poor population in Senegal both in total as well as by stakeholder group. The total capture index represents the general bias and includes the weighted interest of all actors, whereas the indices on group level represent a stakeholder group's interest against the general public. The capture indices on group level reflect the disaggregated total capture indices, but provide valuable information and enable us to identify the stakeholder groups who determine the direction of governmental capture. In general, the capture indices are comparatively low. We find a bias in favor of the rural and a minor bias in favor of the poor population in Senegal as indicated by the total capture indices of 1.39% and 0.25%, respectively. Capture in Sene-

gal is primarily determined by agricultural producers and research organizations,

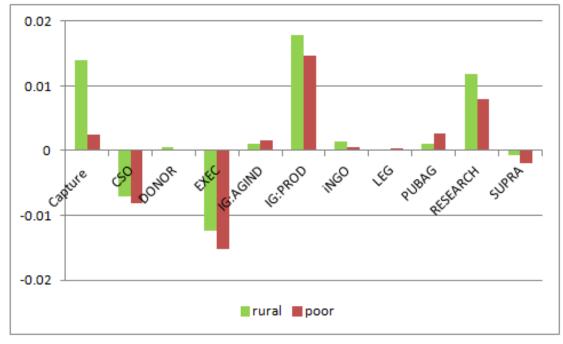


Figure 7.10.: Governmental Capture (Total)

whereas the executive is biased towards the rich and urban population. This results from the opposing interest in the executive. For example, the president shows strong interest in the welfare of agricultural producers, whereas he has little interest in poverty reduction. This annihilates his position in favor of the rural and the poor at the same time. While only two ministries advocate for the rural (PM and MTA), this positive bias is offset by the majority of the executive and leads to a bias towards the urban and rich. However, except for the executive and CSOs, all other stakeholder groups advocate at least to some extent in favor of the rural and poor population which ultimately leads to positive values for our capture indices.

7.4.3. Ownership

Political ownership corresponds to the concept that a society identifies with a specific policy and is committed to accomplishing the envisaged policy goals. To measure political ownership implied by stakeholder participation, we calculate the level of political consensus resulting from political communication and lobbying activities. The higher the level of consensus achieved through stakeholder participation, the higher the political ownership of the society in the decided policies will be. Figure 7.11 displays the conflict indices in the scenario with (γ^*) and without $(\gamma^\#)$ the active participation of stakeholder organizations as well as the resulting ownership index (PO-Consens).

As indicated by Figure 7.11, participation increases the level of consensus for almost all stakeholder organizations. Public agencies and the legislative yield neither a significant reduction nor an increase in the political conflict index. The negative value of the executive is intuitive and a direct consequence of the change

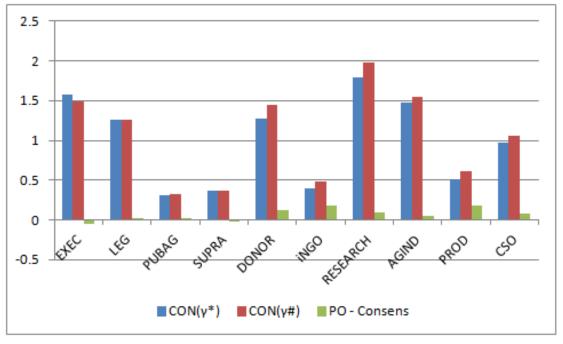


Figure 7.11.: Political Conflict

in the final policy (γ^*) due to the participation of stakeholder organizations. In the scenario without lobbying and political communication, the final policy decision $(\gamma^{\#})$ is only determined by political agents with original voting power, i.e. the ministries and the president in our scenario of legislative decision-making. Including political participation of stakeholders leads to a change in the final policy and thus increases the difference to the ministries' ideal policy position.

Figure 7.12 displays the resulting ownership indices as formulated in section 4.3.

As before, we aggregate CSOs, iNGOs, and farm interest groups as representatives of the *Society*, and include the *Industry* and *Donor* organizations as benchmark stakeholder groups. The society and the group of donor organizations are able to significantly decrease the level of political conflict which leads to an increase of political ownership of 13.22% and 12.03%, respectively. Including political communication and lobbying in the CAADP policy process leads only to a moderate improvement of the industry 5.08%, indicating that the decided policies in the agricultural policy domain of Senegal are primarily owned by the society and donor organizations.

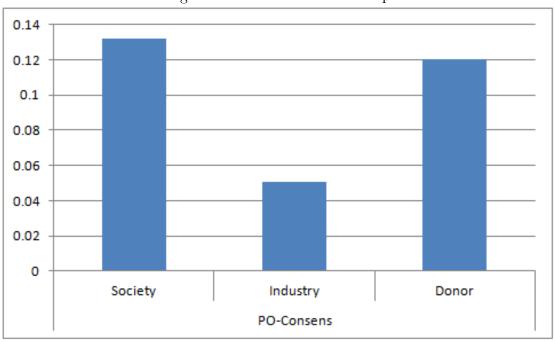


Figure 7.12.: Political Ownership

Chapter 8.

Uganda

Of the three case study countries compared in this study, Uganda is the only one located in East Africa and also the only landlocked country. Uganda shares a border with Rwanda, the Democratic Republic of Congo, Kenya, South Sudan and Tanzania. Lake Victoria, Africa's largest lake is situated in the south of the country and defines part of it's southern boundary. Uganda is divided into four administrative regions, i.e. the Central, Western, Eastern and Northern Region, and subdivided into 111 districts (see Figure 8.1). 37.6 million people live in Uganda (2013), it has the largest population compared to Ghana and Senegal and is further the second most populated landlocked country in the world. Uganda is ethnically very diverse with more than 40 ethnic tribes, most of them speak their own tribal language. The largest and politically and economically most important tribe are the Baganda to which 16.9% of the population belong to. They live mainly in the Central Region around the country's capital Kampala. Other large tribes are the Banyankole (9.5%), the Basoga (8.4%), the Bakiga (6.9%), Iteso (6.4%) and the Langi (6.1%). The ethnic heterogeneity of the country that is due to the former colonial boundaries created by Britain, is one reason for the political instability especially during the regimes of Idi Amin and Milton Obote.

The GDP growth rate declined from 2012 to 2013 from 4.6% to 3.3% and fell below the average growth rate of Sub-Saharan Africa. Uganda's economy still strongly relies on the agricultural sector, which has a share of 23.1% of the countries GDP and an employment share of over 80%. Uganda's main export good is coffee. The country is rich in natural resources. Copper, gold, and other minerals can be found in Uganda. Lately, oil was also discovered in Uganda which will further increase income from exports. The World Bank (2013) classifies Uganda as a low income country with a GNI per capita (Atlas method) of US\$ 600 and a PPPpc of US% 1,630 in 2013. Uganda has the highest infant mortality of the three countries with 66 deceases per 1,000 births. One issue that separates Uganda from the two other SSA countries is the high prevalence of HIV with 7.4% of population ages 15-49. Similar to Ghana, the youth in Uganda is comparatively well educated as demonstrated by a literacy rate of 87% of population ages 15-49. Uganda displays the lowest unemployment rate in all three countries (4%). Compared to Ghana and Senegal, Uganda only has a short history of multi party elections and has not witnessed any peaceful electoral turnovers yet. (Freedom House, 2014) classifies Uganda as a partly free country, with a political rights ranking of five and a civil liberties ranking of four. The polity IV score of Uganda is minus one, which defines it as an anocracy (Marshall et al., 2012).

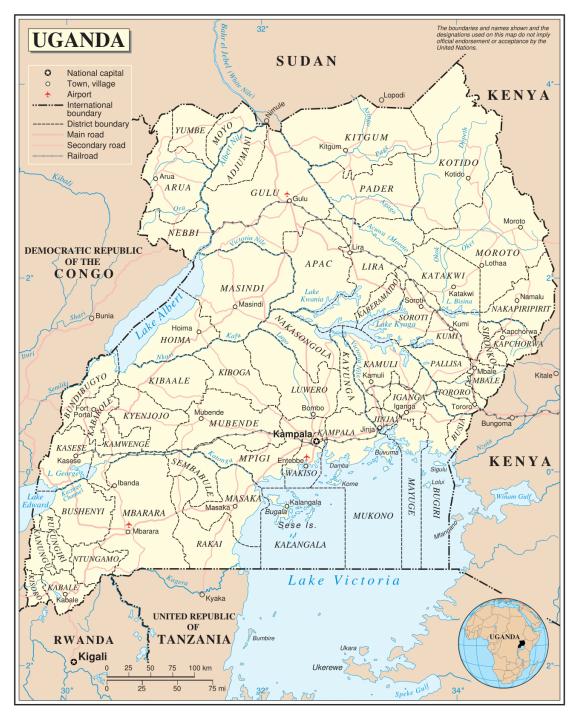


Figure 8.1.: Administrative Regions in Uganda Source: Map No. 3862 Rev. 4, May 2003, UNITED NATIONS

8.1. Relevant Organizations in the CAADP Policy Domain

Table A.16 lists the 43 political actors in Uganda, the corresponding type of organization, and the indegree centralities. The reputation network is an adjacency matrix that depicts the nominations of political actors that are perceived as especially influential in the formulation of agricultural policy programs by stakeholders. The indegree centrality measures the prominence of actors in a directed network and relates in our case to the influence held by political actors in the agricultural policy domain in Uganda. Summarizing an organization's received nominations and standardizing by the number of maximal possible nomination yields the indegree centrality whereby self-nominations are excluded.

With an average indegree centrality of 0.82, donor organizations represent the most influential stakeholder group in the agricultural policy process in Uganda. Interestingly, the perceived political influence of interest groups outweighs the influence of political actors. Besides the agricultural producers (IG:PROD, 0.79), even the non-agrar interest group is (slightly) more influential than the public sector agencies and the executive who exhibit an average indegree of 0.74 and 0.7, respectively. However, the low indegree of the executive is mainly determined by the Ministry of Local Government (0.5), whereas the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is perceived as the most influential player in Uganda with an indegree of 0.97 (see Table A.13 in the Appendix). Like the Ministry of Finance (MOF), the Uganda National Farmers' Federation (UNFFE) exhibits an indegree of 0.9 and ranks among the most influential organizations in the CAADP policy domain.

8.2. Identified Network Structures of Political Participation in Uganda

Similar to Ghana and Senegal, we perform blockmodel analysis to identify the network structure of political participation in Uganda. Blockmodel analysis is a method of positional analysis based on structural equivalence. The idea behind positional analysis is to simplify the information in a network data set. Blockmodel analysis allows us to identify actors that have the same patterns of relation to all other actors in the network. Actors that are structural equivalent have identical entries in rows and columns of the sociomatrix and are aggregated into blocks. The result is a reduced graph of the original network that consists of blocks that depict the underlying structure within the network. Application to quantitative network data of political communication and political support enables us to identify the embeddedness of stakeholders in political communication and lobbying mechanisms.

8.2.1. Political Communication

We identify a clearly structured exchange of expert information among the stakeholders in Uganda. The blockmodel analysis yields a 6-block solution and displays the pattern of political communication in Uganda, with a political core (Bl1) which includes the central governmental institutions, a political (Bl2) and a technical broker (Bl6), a political periphery (Bl3), as well as a donor block (Bl4) and a block primarily comprised of interest groups and research organizations (Bl5). Interestingly, the political core is only weakly connected in the communication network. The exchange of expert information with the governmental organizations that determine the agricultural policy process in Uganda takes place only via broker relations.

Figure 8.2 displays the underlying structure of political communication in Uganda. The reduced graph consists of six blocks. The blocksize reflects the number of actors in the respective block. Sender and receiver of expert information are depicted by arcs representing the existence of established communication ties between blocks. Edge-weights are based on the corresponding density between or within blocks and range from dark gray if communication is very dense to light gray if only few actors relate to each other in providing information on agricultural policies. In order to better identify certain communication patterns, we based relational patterns of the reduced graph on the mean block density, i.e. we omit ties between and within positions if the corresponding density is below the mean.

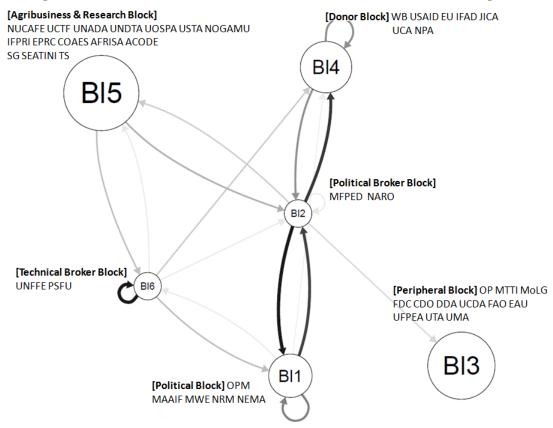


Figure 8.2.: Blockmodel Structure of Political Communication in Uganda

Table A.17 in the Appendix lists the corresponding blockmemberships. The political core (BL1) is determined by the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), the Office of the Prime Minister (OPM) along with the ruling party of the National Resistance Movement (NRM) and two political actors engaged in environmental issues, i.e. the Ministry of Water and Environment (MWE) and the National Environment Management Authority (NEMA).

It is in close collaboration with the Ministry of Finance, Planning and Economic Development (MoFPED) and the National Agricultural Research Organization (NARO) that constitute the political broker block (Bl2) located at the center of political communication in Uganda. The technical broker block (Bl6) is occupied by the Uganda National Farmers' Federation (UNFFE) and the Private Sector Foundation Uganda (PSFU). These two interest groups provide the link between the relatively large agribusiness and research block (Bl5) to the political core and to the donor block (Bl4). The group of donors on the other hand is linked with the political core only via the political broker position obtained by MoFPED and NARO. The close connection between the donor block and MoFPED is not unexpected as both are related due to financial development assistance. The heterogeneous group in the political periphery (Bl3) holds an outsider position in the agricultural policy domain of Uganda and primarily receives information via the political broker block.

Table 8.1 provides a more detailed picture of the structural properties of political communication in Uganda and displays the corresponding blockdensities.

Table 8.1.: Density of Empirical Blocks: Expert Information

	Pol	Pol.Broker	Periphery	Don	AG-RES	Tech.Broker
Pol	0.75	1.00	0.42	0.29	0.11	0.60
Pol.Broker	0.90	0.50	0.42	0.71	0.63	0.50
Periphery	0.38	0.54	0.16	0.11	0.17	0.38
Don	0.49	0.93	0.07	0.71	0.25	0.57
AG-RES	0.00	0.57	0.05	0.08	0.20	0.50
Tech.Broker	0.50	0.25	0.29	0.36	0.60	1.00

Taking a look at the diagonal of the density table indicates that the intensity of expert information exchange within the blocks varies. The political core and the donor block exhibit a comparatively high degree of political communication as indicated by intra blockdensities of 0.75 and 0.71, respectively. Exchange of expert information among the technical brokers, UNFFE and PSFU, is mutual and hence the density yields the maximum density of 1. However, these two stakeholder organizations pursue different interests. UNFFE represents the agricultural producers whereas PSFU is an advocate of the private enterprises. Both actors are among the ten most influential stakeholders according to the reputation network (see Table A.13). Though below the mean and therefore not displayed in Figure 8.2, the entries in the density table indicate that the political periphery (Bl3) is not as isolated as expected. In fact, 42% of the actors in Block 3 exchange expert information with the political core and the political broker block. In general, communication in the agricultural policy domain of Uganda is determined by the political broker position inhibited by MoFEP and NARO. Both, as a receiver and a sender the political broker block exhibits the highest share of information exchange overall as indicated by its column and row entries in Table 8.1.

8.2.2. Lobbying

The lobbying structure in Uganda divides the stakeholder engaged in the agricultural policy domain into two equally sized groups: one group is engaged in lobbying activities whereas the other group is only loosely connected in the political support network. Though the memberships across the empirical blocks vary compared to the previous analysis of political communication, we still identify a similar structure of political support. Especially the organizations who emerged as brokers in the communication network occupy a similar position in the support network. As already noted, lobbying is the approach of interest groups and stakeholders to influence political actors in charge by offering political support in terms of votes in exchange for advocacy by the politician. Hence, unsurprisingly the central position within the political support network is occupied by the leading ministries that determine agricultural policy in Uganda (i.e. MAAIF and MoFEP).

[Agrar Block] MAAIF SEATINI BI1 [Technical Broker Block] UFPEA NOGAMU UCA UMA ACODE UNFFE PSFU BI6 [Agribusiness & Int. Organizations Block] FAO SG UOSPPA USTA BI₅ BI2 [Political Broker Block] MFPED NARO [Donor & Research Block] EU USAID IFPRI UCTF OP OPM MoLG MTTI MWE FDC NRM CDO DDA NEMA NPA UCDA IFAD JICA WB TS AFRISA COAES EPRC [Peripheral Block] NUCAFE UNADA UNDTA UTA EAU

Figure 8.3.: Blockmodel Structure of Political Support in Uganda

Figure 8.3 displays the underlying structure of political support in Uganda. The reduced graph consists of six blocks. Like before, we based the relational patterns of the reduced graph on the mean blockdensity, i.e. we omit ties between and within positions if the corresponding density is below the mean in order to better identify the patterns of political support.

We identify five smaller blocks which are closely related to each other and one

large peripheral block (Bl3) consisting of 56% of all relevant political actors in Uganda whose access to political support is rather limited. Neither are they able to connect to the remaining stakeholders nor do they approach each other. However, the majority of actors within Block 3 is linked indirectly to the other stakeholders via the political broker Block 2. Table A.17 reveals that the distribution of actors across the six blocks is very heterogeneous. The political broker Block 2 consists of MoFPED and NARO and is thus in one to one correspondence with the structure identified in the communication network. This underlines the prominent position both organizations occupy within the agricultural policy domain of Uganda. The same applies for UNFFE and PSFU who occupy the technical broker position in the communication network. In the political support network they hold the same position and constitute the technical broker Block 6 together with the research organization Advocates Coalition for Development and Environment (ACODE). Both, the technical and the political broker block connect Donor & Research (Bl4) with the Agricultural Block 1. Block 5 is only linked to the political broker block and is comprised of agribusiness interest groups and international organization.

	Table 8.2.:	Density	of Em	pirical	Blocks:	Support
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	Agrar	Pol.Broker	Peripheral	DON-RES	Agind	Tech.Broker
Agrar	0.53	0.92	0.23	0.33	0.25	0.94
Pol.Broker	0.67	0.50	0.38	0.75	0.75	0.17
Peripheral	0.15	0.54	0.06	0.25	0.08	0.18
DON-RES	0.17	0.88	0.20	0.75	0.12	0.83
Agind	0.08	1.00	0.20	0.19	0.67	0.50
${\it Tech.Broker}$	1.00	0.50	0.21	0.75	0.42	0.67

Table 8.2 displays the corresponding blockdensities. Except for the peripheral group in Block 3, the exchange of political support within the blocks is relatively high in Uganda as indicated by the diagonal in Table 8.2. The extremely low intrablockdensity of 0.06 for peripheral block (Bl3) is particular interesting. Not only represents this block with 24 actors the largest group aggregated by blockmodel analysis, but it is comprised of the majority of governmental organizations as well. Except for MAAIF (Bl1), MoFPED (Bl2) and NARO (Bl2), all identified institutions of the executive, legislative, and public agencies are located in the periphery of political support. Only 6% of the possible ties within Block 3 are realized, implying that political support among these organizations is almost non-existent. The exchange of political support is concentrated among the political broker position of MFPED and NARO who are engaged in lobbying activities in which NARO sends and MFPED receives political support.

8.3. Political Influence and Power

According to our network model of political belief updating, communication structures determine political influence among governmental and non-governmental organizations. Hence, at a descriptive level, an analysis of the ways in which organizations are influenced by each other is of interest. Beyond a descriptive

analysis, it is especially interesting to evaluate the impact of political influence structures on different aspects of political performance. For example, evaluating the extent to which the final policy positions of governmental organizations are influenced by the political views of non-governmental organizations by measuring the effective participation using political power indices. Or, evaluating the extent to which central organizations take political leadership vis-à-vis civil society in a top-down political process using network multipliers. Moreover, a high political influence exerted by donor organizations would characterize a donor-led policy process, which might undermine political ownership if national stakeholder organizations feel ignored. Furthermore, an analysis of the extent to which the identified political influence and power structures reflect the political expertise of the involved governmental and non-governmental organizations is of interest. To assess these interesting questions, we provide a descriptive analysis of the identified political influence and power structures in the following section, and we evaluate the impact of the identified structures on political performance in the next section. The network multipliers derived from political communication as described in section 3.2, are the centerpiece of our political influence model.

8.3.1. Politicial Influence

Table 2 2 ·	Motrock	Multipliore	per Group:	Export	informa	tion
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				-	-	_	-			
	EXEC	PUB	LEG	DON	iNGO	RES	AG	PROD	NA	CSO
EXEC	0.53	0.12	0.03	0.04	0.02	0.10	0.05	0.07	0.02	0.02
PUB	0.09	0.65	0.02	0.04	0.01	0.08	0.04	0.05	0.01	0.01
$_{ m LEG}$	0.12	0.12	0.49	0.04	0.01	0.09	0.04	0.07	0.01	0.02
DON	0.10	0.08	0.01	0.56	0.01	0.12	0.04	0.06	0.01	0.01
iNGO	0.04	0.05	0.01	0.03	0.52	0.17	0.06	0.09	0.02	0.02
RES	0.02	0.03	0.00	0.02	0.00	0.83	0.02	0.07	0.00	0.00
\overline{AG}	0.08	0.07	0.01	0.03	0.01	0.13	0.57	0.07	0.03	0.01
PROD	0.03	0.03	0.01	0.01	0.02	0.08	0.05	0.74	0.01	0.01
NA	0.08	0.07	0.03	0.03	0.03	0.14	0.14	0.11	0.36	0.02
CSO	0.05	0.04	0.02	0.01	0.02	0.16	0.01	0.08	0.01	0.61

Table 8.3 displays the communication network multipliers that were calculated for specific categories of governmental and non-governmental organizations. The network multipliers presented in Table 8.3 correspond to the aggregated weight of the policy positions of the column category in determining the final policy position of the average individual row category. For example, the first row represents the aggregated influence of the column category on Uganda's executive (EXEC). The final policy position of the executive after communication is determined to 53% by its own initial position. The aggregated weight of Donors' initial position (DON) on the executive's final position is 4% whereas public agencies (PUB) yield 12%. Please note, that the relatively high network multipliers on the diagonal result from a very high own control stated by the respective organizations within the groups. The own control is an indicator for the trust in external information, i.e. the relative importance of an actor's own expertise versus external information

received from other organizations. An own control of 1 indicates that the actor relies on her expertise exclusively whereas an own control of 0 is indicative to the dependence on external information.

Research organizations (RES) exhibit a high own network multiplier of 83% as expected, indicating that they consider themselves as technical leaders with high political knowledge. The same applies to the group of agricultural producers (PROD) which features the second highest own network multiplier (74%). In contrast, the executive and the legislative report a comparatively low own control. In fact, both governmental institutions obtain with 53% (EXEC) and 49% (LEG) own network multipliers which are among the lowest in the whole network. This implies that both institutions rely on expert information to a greater extent than other stakeholder groups. Non-agricultural interest groups is an exception. With an own network multiplier of 36% they clearly don't consider themselves as experts in agricultural policy which is intuitive. Public sector agencies (PUB) report a relatively high own control (65%) compared to other governmental organization and are less open to expert information provided by other organizations. International organizations such as donors (56%) and iNGOs (52%) and the interest group of agricultural industries (AG, 57%) are in midfield. The civil society (CSO) exhibits a value of 61% which indicates a solid position within the policy domain of Uganda, an aspect we will investigate more thoroughly in the next paragraph.

Beyond own control, the influence profiles of organizations are interesting. Influence profiles identify influential organizations and describe the extent to which other organizations influence the initial policy position of an organization. Formally, influence profiles can be described by the vector of relative network multipliers that operate as an influence field on an organization. Based on our belief formation model, the influence field operating on an actor is determined by her local communication structures. We conducted a cluster analysis using the influence profiles of the identified organizations. Based on the reported statistical fit values, we preferred a 6 cluster solution. Overall, we find that governmental actors exhibit the highest influence in the agricultural policy domain, followed by research organizations and agricultural interest groups alike.

Cluster analyzing the computed influence profiles yields a very large cluster which comprises 53% of the actors involved in the CAADP policy domain (cluster 1). Except for research organizations, cluster 1 corresponds to the relative distribution of associated stakeholder organizations in the whole dataset and thus delivers a relatively broad overview of the structural properties of political influence exerted by the aggregated stakeholder groups (see Table A.17). Cluster 2 is primarily composed of members of governmental institutions, whereas cluster 3 comprises interest groups and international organizations engaged in the promotion of the agricultural industry and trade sector. Clusters 4-6 are primarily occupied by research organizations. Though most of them rely heavily on their own expertise as already indicated by the very high own network multipliers, the composition of influence exerted on research organizations by other stakeholder groups still exhibits variations.

We aggregated the relative influence of stakeholders according to their institu-

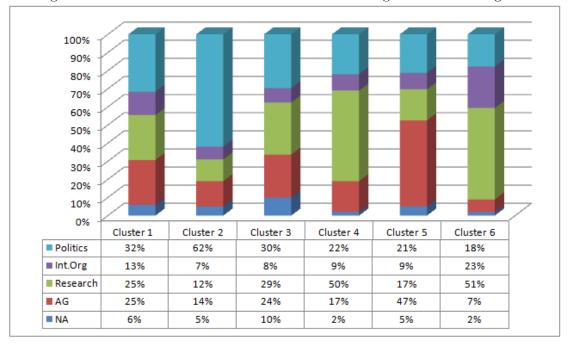


Figure 8.4.: Relative Influence of Governmental Organizations in Uganda

tional affiliation (see Table 5.1) and differentiated between agricultural AG (i.e. IG: AGIND and IG: PROD) and non-agricultural NA (i.e. IG:NONAGRAR and CSO) stakeholder organizations. Figures 8.4 and 8.5 indicate that governmental organizations exert the highest influence on other organizations with an average influence share of 33%, followed by research organizations and agricultural interest groups who hold average influence shares of 27% and 23%, respectively. International organizations exert low influence on other organizations with average shares of 9% (DONOR) and 2% (iNGOs). The influence of civil society organizations is negligible with an average value as low as 3%.

A more detailed analysis of the influence of governmental institutions reveals that the main influence on other organizations is primarily exerted by public agencies. The two leading ministries that determine agricultural policy in Uganda (i.e. MAAIF and MoFEP) exert only little influence on other organizations. The president (OP) and the prime minister (OPM) are at par with the legislative (i.e. NRM and FDC).

With 23 actors cluster 1 comprises more than half of the stakeholders represented in our dataset. Except for research organizations, the cluster-membership depicts the relative distribution of actors in the agricultural policy domain of Uganda which is also reflected in its influence field. The influence exerted by the five stakeholder groups aggregated corresponds almost completely to the average computed regardless of cluster membership. While the influence of research and governmental institutions (Politics) is slightly underrepresented, international organizations (Int. Org) and the agricultural sector (AG) exceed the average by two percentage points. This is straightforward as research organizations are not included in cluster 1. The predominant position of the governmental institutions however is primarily determined by public agencies who account for an influence

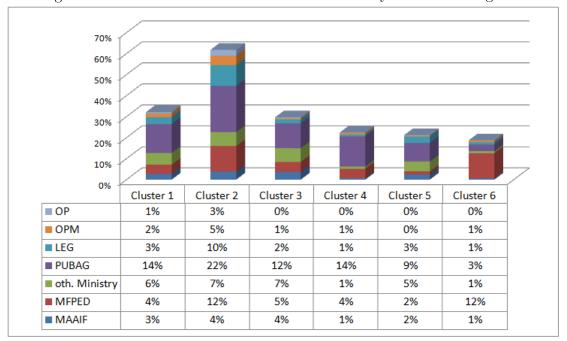


Figure 8.5.: Influence Profile in the CAADP Policy Network in Uganda

share of 14% and thus exert more influence on stakeholder organizations in this cluster than all ministries combined (see Figure 8.5). The agricultural sector (AG) exhibits a value of 25% and is at par with research organizations. This might indicate ownership of national stakeholders in the political process rather than a donor-led policy in Uganda. The most influential organizations determining the influence field of cluster 1 are the Economic Policy Research Center (EPRC) and the International Food Policy Research Institute (IFPRI) who exert a combined influence of 19%, followed by the Uganda Cooperative Alliance (UCA) and the National Agricultural Research Organisation (NARO) who represent the agricultural sector and public agencies with 6% and 5%, respectively.

In contrast to the balanced influence field operating on cluster 1, cluster 2 is heavily influenced by governmental institutions (62%). The impact of international organizations, research, and the agricultural sector is decreased significantly. Public agencies, the Ministry of Finance and Economic Development (MFPED), and political parties (LEG) are the institutions who primarily determine the strong governmental influence operating on cluster 2. MAAIF exerts comparatively less influence on cluster 2. The increased influence of the MFPED on this cluster is consistent with the results of the blockmodel analysis. The majority of actors in this cluster are located in the political periphery and primarily receive expert information through the political broker (i.e. MFPED and NARO).

Cluster 3 is characterized by stakeholder organizations engaged in the agricultural trade and export sector. The influence profile of cluster 3 appears to be quite similar to cluster 1 at first. The influence exerted by governmental institutions (Politics) and the agricultural sector (AG) is almost identical to the influence field operating on cluster 1 with values of 30% and 24%, respectively. However, while research organizations (29%) are almost at par with governmental institu-

tions, the NA sector exhibits the highest values across clusters (10%) whereas the impact of international organizations decreases to only 8%.

The five research organizations included in the sample for Uganda have extremely different influence profiles and hence form separate clusters. Cluster 4 comprises next to AFRISA and COAES also an iNGO specialized in agricultural extension services (Sasakawa Global), cluster 5 is composed of the Advocates Coalition for Development and Environment (ACODE) and the powerful interest group of agricultural producers, i.e. the Uganda National Farmers' Federation (UNFFE). In contrast, cluster 6 consists of the two most influential research organizations in Uganda, i.e. the International Food Policy Research Institute (IFPRI) and the Economic Policy Research Center (EPRC). Governmental institutions have only limited influence on research organizations and exhibit the lowest values compared to the other three clusters, ranging from 22% (cluster 4) to 18% (cluster 6). Decomposing the influence exerted by governmental institutions reveals that the three clusters are influenced by different political bodies even though the relatively balanced influence profiles in Figure 8.4 suggest otherwise. While cluster 4 is primarily influenced by public agencies (14%) and MFPED (4%), the opposite holds for cluster 6 for which PUBAG and MFPED yield 3% and 12%, respectively. While cluster 5 is also primarily influenced by public agencies (9%), other ministries (MoLG, MTTI, MWE) and political parties are more influential than both MFPED and MAAIF. As already indicated by the high own network multiplier in Table 8.3, research organizations exert a very high influence among each other. This is also reflected in the influence profiles of clusters 4 to 6. However, while cluster 4 and 6 exhibit values of 50% and 51%, respectively, this does not hold true for cluster 5 (17%) which receives an unmet 47% by the agricultural sector instead. The influence exerted by research organizations on cluster 4 and cluster 6 is almost entirely determined by the two leading think tanks in Uganda. Both EPRC and IFPRI exhibit an influence of 23% on cluster 4, which underscores their predominant position among technical experts in Uganda. This is further underlined by the influence field operating on their own cluster 6. Both research organizations consider themselves as technical experts in the field of agricultural policy research which is reflected by an extremely high own control of 90% stated by both organizations. This results in a mutual influence on the final policy positions of 24% (IFPRI) and 25% (EPRC) exerted on cluster 6. However, we identify a further stakeholder group that has a relatively big influence on the two think tanks in cluster 6. International organizations hold an average influence share of 23%, which is primarily determined by USAID (19%). In contrast, cluster 4 and especially cluster 5 obtain a large share by the agricultural sector which yields values of 17% and 47%, respectively, with the interest groups of agricultural producers being the driving force with an average influence of 13% (cluster 4) and 31% (cluster 5).

8.3.2. Political Power

To determine the impact of these specific influence structures on political performance we follow the procedure described in chapter 6 and combine the network multipliers with political decisionmaking power to derive the total political power

of organizations.

Like Ghana and Senegal, Uganda is a presidential democracy, where legislative regulations are decided by the parliament under a simple majority rule. By constitution, the president lacks a binding veto power and the government has no binding agenda-setting power vis-à-vis the parliament. Nevertheless, in political practice, the parliament exerts no significant legislative power and is reduced to a pure acclamation machine; the real legislative power rests in the government. Accordingly, we constructed relevant legislative games, accounting for the dominant role of governmental institutions as legislative norms.

In particular, we assumed that agricultural policy in Uganda is decided following the principle of departmental responsibility, i.e. the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) has agenda-setting power vis-à-vis the cabinet including the president, and the cabinet decides with a simple majority. Alternatively, in the power scenario PRES, we assume that the president functions as a 'primus inter pares' in his cabinet (i.e. we assume that the president has agenda-setting power vis-à-vis his cabinet). In the contrasting scenario DUO the president and MAAIF share agenda-setting power. In the three scenarios MAAIFPARL, PRESPARL, and DUOL we assume that legislative decisionmaking in Uganda is furthermore characterized by party leadership (i.e. the ruling party NRM) in combination with the aforementioned scenarios. Table 8.4 summarizes the calculated Banzhaf indices for the different constructed legislative scenarios. This table demonstrates that for the 3 government-led scenarios, legislative decisionmaking power is shifted among MAAIF, the president, MAAIF and the president, and the leading party NRM in combination. Please note, that the opposing party FDC is included for the sake of completeness and does not have agenda-setting power in any of the above mentioned secenarios.

	MAAIF	PRES	DUO	MAAIFPARL	PRESPARL	DUOL
MAAIF	0.2683	0.1220	0.2581	0.2115	0.0962	0.2051
MFPED	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MoLG	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MTTI	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
MWE	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
OP	0.1220	0.2683	0.2581	0.0962	0.2115	0.2051
OPM	0.1220	0.1220	0.0968	0.0962	0.0962	0.0769
FDC	0	0	0	0	0	0
NRM	0	0	0	0.2115	0.2115	0.2051

Table 8.4.: Banzhaf Power Indices

Belief and Lobbying Power

To analyze how much belief power an actor gains from his inclusion into the elite's communication network, we combine the network multipliers with Banzhaf-power indices⁸. Figure 8.6 displays the resulting political power from access to expert communication and political support.

⁸In this study we assume *DUO* as the underlying scenario.

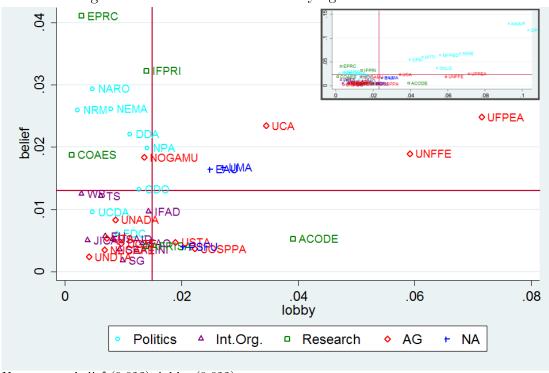


Figure 8.6.: Political Power: Lobbying and Communication

Note: mean belief (0.023), lobby (0.023); mean w/o EXEC: belief (0.013), lobby (0.015)

The belief power represents the political influence of an actor by exchanging expert information in the communication network and is a result of belief updating. The lobbying power stands for the political influence of an actor without any original voting power that results from her access structure to powerful legislators in the support network. The better access an interest group has to powerful legislators, the more successful are the lobbying activities of this organization. Following this theoretical approach we expect to find a pattern of power distribution that reflects the institutional affiliation of elite members in the CAADP policy domain. For example, research organizations are clearly a provider of knowledge and expert information and therefore are expected to have greater political influence resulting from knowledge provision than from successful lobbying activities based on the access structure in the support network. Donor organizations on the other hand, are expected to have relatively greater lobbying power.

Figure 8.6 displays the resulting political influence from access to powerful legislators in expert communication and support networks by organization. We included the means of both power indices to create quadrants within the coordinate plane which enables us to identify organizations according to their relative power, i.e. being relatively influential due to either provision of expert information or successful lobbying activities. Governmental organizations are extremely influential and yield comparatively very high values in both belief and lobbying power as can be seen in the small figure in the top right corner. In order to better distinguish the power distribution of non-governmental organizations we exclude the ministries and the office of the president from the scatter plot and adjust the means of belief

and lobbying power, respectively.

The distribution of political power in Uganda yields a clear picture and confirms our assumption that political communication and lobbying activities depend on the organizational affiliation of political actors. The executive accounts for the largest share of power due to its original voting power in the legislative game. The executive is located in the top right quadrant which indicates above average values for both power indices. However, we can clearly identify a comparatively greater share in belief power. Comparing the mean power indices before and after exclusion of the ministries support this finding and show that the executive is responsible for balancing the average political power with mean values of 2.3% whereas the exclusion of the executive yields asymmetrical values for the lobbying and belief power of 1.5% and 1.3%, respectively. The executive exhibits significant shares in belief and lobbying power with values of 53\% and 46\%, respectively, whereas the ratio of belief power to lobbying power is less balanced for the remaining governmental institutions. Both public agencies and the legislative (i.e. Politics) exhibit below average values in terms of lobbying power. Figure 8.6 reveals however, that all public agencies (except for UCDA) as well as the ruling party NRM are powerful actors in the communication network as indicated by individual values of belief power between 1% (NRM) and 2.9% (NARO). International organizations comprise both donor organizations and iNGOs. Both stakeholder groups exhibit only low values in belief and lobbying power and are located in the lower left quadrant in Figure 8.6. The low performance of donor organizations in Uganda is particularly interesting as they comprise prominent multilateral donors like the World Bank, FAO, or USAID. However, they lack access to powerful legislators in both the communication and support network. This is also displayed in the reduced graphs of political communication and support (Figures 8.2 and 8.3). They hold a share in political power of only 5% and rank in between the group of non-agricultural stakeholder organizations (NA) who hold shares of 3.7% and 7.2% in belief and lobbying power, respectively. Except for the Advocates Coalition for Development and Environment (ACODE) who is clearly successful in its lobbying activities, research organizations are primarily engaged in the provision of expert information with individual belief powers as high as 4.1% (EPRC). The majority of agricultural interest groups (i.e. producers and agribusiness) is positioned among organizations with below average political power. However, we identify four agricultural stakeholders who are comparatively well connected with powerful legislators in both the expert communication and the support network. While all four interest groups hold individual values of belief power between 1.8% and 2.5%, the equipment with lobbying power is subject to more variation. The Uganda Fish processors and Exporters Association (UNFPE) as a representative of the agricultural industry yields the highest lobbying power (7.2%) apart from MAAIF and OP. Next to UNFPE, we identify three stakeholder organizations representing agricultural producers who hold significant shares of political power. The Uganda National Farmers Association (UNFFE) and the Uganda Cooperative Alliance (UCA) both appear as quite powerful lobbyists with individual lobbying power of 5.9% and 3.4%, respectively, whereas the National Organic Agricultural Movement of Uganda (NOGAMU) is comparatively more engaged in the provision of expert knowledge.

Total Power

Following equations (4.1) to (4.3), we calculate the total political power that determines the final policy position (y^*) by combing the political power derived from the political bargaining game, including lobbying, with the political influence derived from political communication networks.

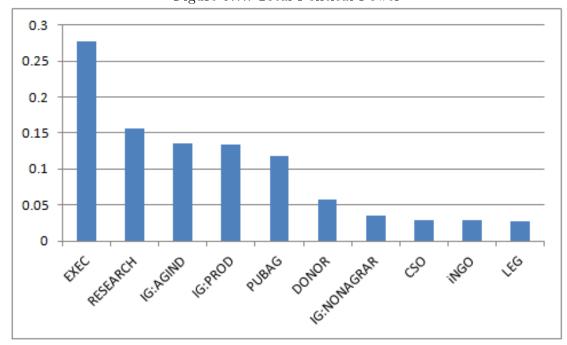


Figure 8.7.: Total Political Power

Figure 8.7 displays the total power on group level. The major share of total political power is held by the executive (27.8%), yet the power distribution among the ten stakeholder groups is less pronounced and suggests a bottom-up knowledgebased policy process as research organizations and agriculture interest groups yield relatively high power shares of 16% and 13%, respectively. Furthermore, the power within the executive is evenly distributed among the ministries and the president with individual shares between 5.7% (MOFA) and 2.1% (MoLG). These values are met and even exceeded by the very powerful non-governmental organizations in research and the agricultural sector. The cooperative alliance UCA holds with 5.8% the highest share among all non-governmental organizations involved in the CAADP policy domain, while the agribusiness association UFPEA is at par with MOFA at 5.7%. The strong position of research organizations is primarily determined by the EPRC and IFPRI who hold individual shares of 5.1% and 4.7%, respectively. The most striking result however is the comparatively low performance of donor organizations who hold only 5.8% of total power and rank fifth behind public agencies. While this finding supports the impression of a participatory policy process in Uganda, the application of the indicators derived in chapter 4 will provide more insights in the political performance.

8.4. Stakeholder Participation in the Policy Process

So far we concentrated our analysis on the distribution of power and the influence of governmental and non-governmental actors in the policy process. In this section we discuss how the identified network and power structures impact political performance. In particular, we used the derived indicators to measure political accountability, capture and ownership. Unfortunately, we were not able to collect empirical data to apply the knowledge indicator which is therefore not further considered in this chapter. While the accountability indices primarily consist of the political power held by particular stakeholder groups, the measures of capture and ownership additionally take account of the relative importance of certain policies and the ideal policy positions, respectively.

8.4.1. Accountability

The successful functioning of any government depends on the ability of citizens to hold politicians and public administrators accountable for their actions. To measure the degree of accountability we use the sum of the total political power of important stakeholder organizations as a general indicator (GA-Total). Furthermore, to understand how policy network structures interact with constitutional rules, we use the belief power (GA-Belief) and lobbying power (GA-Lobby) as additional sub-indicators to comparatively evaluate the extent of political power due to communication and access structures. In particular, we distinguish three stakeholder groups. We aggregate CSOs, iNGOs, and farmer interest groups as general representatives of the *Society*. To adequately assess the level of accountability held by the society compared to other influential stakeholder groups we additionally include the *Industry*, i.e. NA and agribusiness interest groups, as well as donor organizations (*Donor*).

Figure 8.8 depicts the general accountability as well as the two sub-indicators for all three stakeholder groups. In general, national stakeholder organizations in Uganda yield very high values in GA-Total indicating that the government is particular accountable towards the society (19.1%) and to the industry (17%) who clearly outweigh donor organizations with a share of 5.8%. These results are primarily determined by society's access to influential actors in the communication network as the industry is comparatively better linked in the political support network. The low performance of donor organizations in combination with the high shares exhibited by domestic stakeholders implies that governmental actions and policy decisions particularly reflect the desires of the society and industry in Uganda. However, the similarly large share of political control might induce a conflict of interests between the two domestic stakeholder groups even though it implies a bottom-up policy process. In how far the inclusion of stakeholders in the policy process decreases governmental capture or increases political consensus among the political actors is subject of the analysis in the next two subsections.

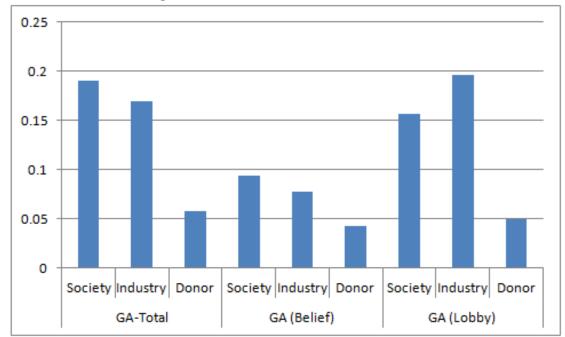


Figure 8.8.: Governmental Accountability

8.4.2. Capture

Governmental capture corresponds to the concept that governmental political actions and policy choices are biased towards the particular interests of organized social groups at the expense of the general public. We follow a two step procedure to determine the extent of interest bias. In the first step we calculate the weighted mean interest bias towards a particular policy issue to display the general over-or under-representation of a particular policy issue.

Figure 8.9 shows the ten different policy concerns as surveyed in the policy preference part of the elite questionnaire (see chapter 5). Stakeholder organizations were asked to distribute 100 points among the mentioned policy concerns according to their relative interest. Taking the mean interest as a proxy for the policy concern of the general public we calculate the difference of an organization's interest to the mean interest per issue and weight this difference with the organization's political power. Figure 8.9 represents the total deviation from the general interest. Please note, that figure 8.9 only displays relative values and hence no direct conclusion can be drawn on the general importance of a particular policy issue. For instance, if the mean interest by stakeholders is high in a particular issue and stakeholders do not differ much in their interest in this issue we find a comparatively small value. On the other hand, even if the general interest is quite small we may identify large values if stakeholders have strong opposing interests. According to our proposed measurement of governmental capture, two options arise causing the performance of total deviation. Taking the mean as the general public's policy interest may in fact overstate the importance of a policy issue if few political actors put particular emphasis on this issue whereas the majority of stakeholders show only moderate interest. This would result in a general negative bias as most of the actors yield a negative value in the mean-difference. The

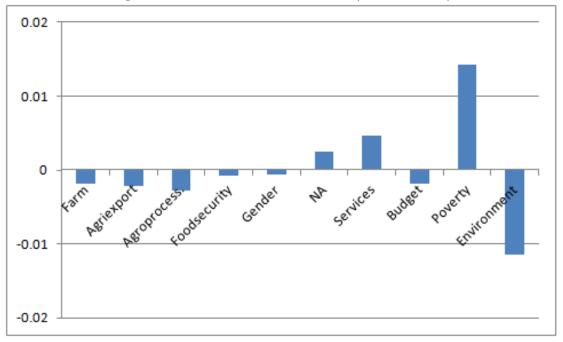


Figure 8.9.: Governmental Capture (Policy Issues)

other option stems from the distribution of political power and is the result of particular powerful actors being comparatively more (less) interested in a certain policy issue than actors with equal or less political power. As our analysis aims at the identification of policy issues that are biased towards particularly powerful actors, we consider our approach valid for two reasons: First, the mean interest as a proxy for the general public is rational as we regard the stakeholders included in our analysis as representatives of the CAADP policy domain and thus the mean interest portrays the general policy concern as a result thereof. Second, it is not irrational for political actors to emphasize specific policy issues while showing no interest in other subjects at all. This holds true especially for contradicting issues like the welfare of agricultural producers versus the welfare of the industry (NA) or market services sector.

In general, the majority of stakeholders show less interest in the welfare of the agricultural sector in Uganda. This negative bias is reinforced by the distribution of total power. This finding holds in general as the interest of the public is approximated by the mean interest of the stakeholders involved and yields average values between 5.3% for the welfare of farmers and 2.5% for the welfare of the agricultural export sector (see Table A.18).

Only three stakeholder organizations advocating for the welfare of farmers hold a significant share in total power, i.e. the two agricultural interest groups UNFFE an UFPEA, and the research organization EPRC. More interestingly, however, is the strong bias in favor of the non-agricultural and services sector compared to the huge advocacy for poverty reduction and the negative result for environmental stability. All four policy issues exhibit the highest relative interest by the general public with values as high as 28.5% (Poverty), 20.6% (Environment), 7.6% (Services), and 7.1% (NA). This is basically the result of the power distribution

in Uganda that goes hand in hand with opposing interests. Clearly, we identify a difference between the interest in environmental sustainability and poverty reduction. While both of these issues yield high percentages in relative interest by the general public, stakeholder organizations tend to concentrate on one issue only. Members of the executive for instance regard poverty reduction as more important than the general public and hold the highest shares in total political power in Uganda. On the other hand, advocates of environmental sustainability like donor organizations hold the lowest share in power and are clearly outweighed by powerful actors like MAAIF or MFPED who both show comparatively less interest in this particular issue. The discrepancy identified between the welfare of the agricultural sector and the welfare of the industry and services sectors can be reduced to the same pattern. The ministries hold combined the largest share in total power in Uganda. All of the executive have below average interest in the welfare of the agricultural sector, while advocating for the industry- and services sector at the same time. To some extent, this even holds for the MAAIF which only shows significant interest in the welfare of the agricultural export sector. In order to identify governmental capture towards organized social groups we incorporate a directional parameter to take account of the interests of vested groups in regard of four global policy dimensions favoring either the rural or urban, the poor or the rich population. However, as the two dimensions 'pro-urban' and 'prorich' basically constitute the anti poles to 'pro-rural' and 'pro-poor', respectively, we only depict the latter as can be seen in Figure 8.10.

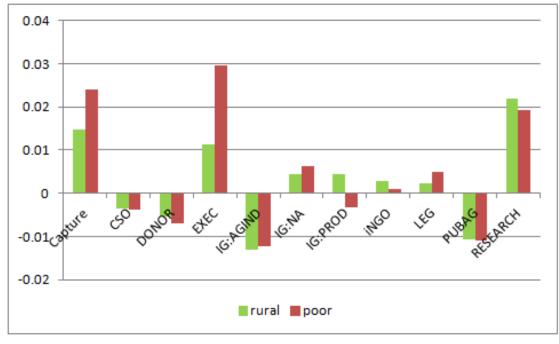


Figure 8.10.: Governmental Capture (Total)

We account for country specific differences while mapping the ten policy issues according to the global dimensions 'pro-poor' and 'pro-rural'. Figure 8.10 displays governmental capture towards or against the rural and the poor population in Uganda both in total as well as by stakeholder group. The total capture index

represents the general bias and includes the weighted interest of all actors, whereas the indices on group level represent a stakeholder group's interest against the general public. The capture indices on group level correspond to the disaggregated total capture indices, but provide valuable information by enabling us to identify the stakeholder groups that determine the direction of governmental capture. We find a moderate bias in favor of the poor and a minor bias in favor of the rural

population in Uganda as indicated by the total capture indices of 2.4% and 1.5%, respectively. Capture in Uganda is primarily determined by the executive and by research organizations. However, the executive is particularly biased towards the poor whereas research organizations are comparatively more biased towards the rural population. Both CSOs and donor organizations as well as agribusiness and public agencies are biased towards the urban and rich. Nevertheless, the policy process in Uganda is dominated by the executive and by research organizations who are in favor of the rural poor.

8.4.3 Ownership

Political ownership corresponds to the concept that the society identifies with a specific policy and is committed to accomplishing the envisaged policy goals. To measure political ownership implied by stakeholder participation, we calculate the level of political consensus resulting from political communication and lobbying activities. The higher the level of consensus achieved through stakeholder participation, the higher the political ownership of the society in the decided policies will be. Figure 8.11 displays the conflict indices including lobbying and communication (γ^*) and without lobbying and communication $(\gamma^\#)$ as well as the resulting ownership index (PO-Consens) on group level.

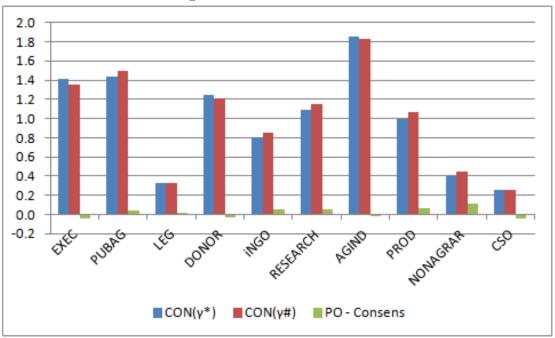


Figure 8.11.: Political Conflict

As indicated by Figure 8.11, participation increases the level of consensus for almost all stakeholder organizations whereas the ministries, donor and civil society organizations lose from the involvement of stakeholder organizations. The negative value for the executive is intuitive and a direct consequence of the change in the final policy (γ^*) due to the participation of stakeholder organizations. In the scenario without lobbying and political communication, the final policy decision ($\gamma^{\#}$) is only determined by political agents with original voting power, i.e. the ministries and the president in our scenario of legislative decision-making. Including political participation of stakeholders leads to a change in the final policy and thus increases the difference to the ministries' ideal policy position. Interestingly, civil society and donor organizations yield a negative value in PO-Consensus. Figure 8.12 displays the resulting ownership indices as formulated in section 4.3.

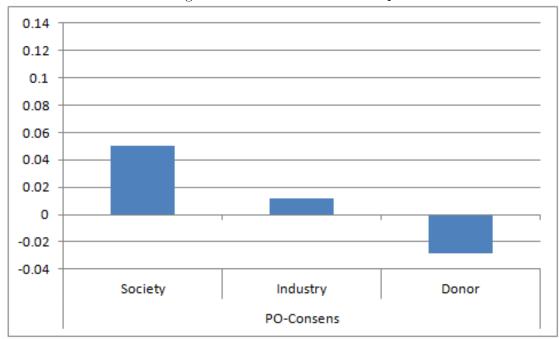


Figure 8.12.: Political Ownership

As before, we aggregate CSOs, iNGOs, and farm interest groups as representatives of the *Society*, and include the *Industry* and *Donor* organizations as benchmark stakeholder groups. In general, the political consensus reached through stakeholder participation in Uganda is only marginal. The society yields the highest value (5%), whereas the industry shows almost no significant improvement (1.2%). Donor organizations exhibit a negative value (-2.8%) indicating that the inclusion of stakeholder organizations increases the gap between the policy preferred by donors' and the final policy decision.

To adequately assess the effect of stakeholder participation in the CAADP policy process we provide a comparative perspective in the next chapter 9. We first review the central results of the network structures of political participation in a cross-country analysis. In a second step we take account of the variance in government performance of the three countries and examine the results of the applied participation indicators. We then apply the derived indicators to estimated net-

works which enables us to validate and to check for robustness of the empirical network data.

Chapter 9.

A Comparative Perspective

This chapter provides a comparative analysis of the central results from the country studies. Section 9.1 summarizes the identified network influence structures of political participation. Subsequently, we examine the results of the applied participation indicators in section 9.2 and discuss the relationship between government performance and participation in the policy process. Finally, we present insights into the limits of network analysis and test for robustness in an ERGM-MCMC framework in section 9.3.

9.1. Network Structures of Political Participation

Ghana, Uganda, and Senegal differ from each other in terms of political communication and lobbying structures which ultimately affects the distribution of political influence and power in the respective country. With 43 stakeholders in Senegal and 46 political actors both in Ghana and Uganda, the policy networks establishing the CAADP policy domain in these countries are almost equally sized. Governmental institutions represent the largest share in all three countries. However, while international organizations including donor and iNGOs (and supranational organizations) account for the second largest stakeholder group in Ghana (26%) and Senegal (24%), agricultural interest groups are especially strong represented in Uganda (26%).

Primarily used for the boundary specification of the empirical networks, the reputation network yields valuable first insights into the influence structure. It reveals the prevalent influence distribution in the policy domain as perceived by the political actors involved in the policy process. The reputation network contains information about the influence each political actor holds in the policy process as perceived by all actors within our country data set. Based on the indegree centrality of the reputation network we are able to tell which stakeholders are perceived as extremely influential in the policy process. On individual level, members of the executive are considered to be the most influential actors in all three countries. The ministry of agriculture ranks first in Ghana (1.00) and Uganda (0.97), whereas the ministry of finance (0.93) yields the highest indegree in Senegal. On group level, donor organizations obtain the highest values in Ghana and Uganda. Governmental institutions like the executive (0.79) and public agencies (0.69) place second and third, respectively, in terms of group-level indegree in Ghana, the agricultural sector is particular influential in Uganda. Two supranational organizations, CEDEAO and UEMOA, are included in the analysis for Senegal and yield the highest aggregate value with an indegree of 0.9, followed by donor organizations (0.81) and the executive (0.77). The indegree centrality of the reputation network gives a first idea of the composition and structure of political influence in the three countries. The analysis of access to expert knowledge and political support is particularly important in order to evaluate political participation as these networks provide the basis for the theoretically founded framework to analyze participatory policy processes.

With global densities of 0.23 (Ghana), 0.25 (Uganda), and 0.28 (Senegal) of the confirmed expert networks, political communication in the CAADP policy domain is comparatively equal in the three countries. For example, Knoke et al. (1996) identify in the comparison of labor market policy domains significant variations in the densities of the U.S (0.39), Germany (0.29), and Japan (0.17).

In general, we find distinct communication patterns. Blockmodel analysis of the political communication networks reveals that political communication is clearly structured in all three countries. In both Ghana and Senegal, the ministry of agriculture occupies a block by itself whereas the MAER in Uganda is located among other governmental actors within the political core. We identify block memberships according to the affiliation of the stakeholders involved in political communication.

Political communication in Ghana is determined by a clear center-periphery structure. Surrounded by satellite-blocks, the ministry of agriculture holds a central position and acts as a broker linking all other blocks. Significant exchange of expert information only occurs between MOFA and the political actors rather than among the remaining stakeholder organizations, indicating the extremely influential position the ministry occupies in Ghana as already pointed out by its individual indegree centrality in the reputation network. Interestingly, we find Ghana's leading think tank ISSER among the heterogeneous actors in the peripheral instead of the research block.

In contrast to Ghana, the exchange of political expert knowledge is much more diverse in Uganda. The ministry of agriculture is not exposed as a single actor occupying a gate-keeper position, but rather constitutes the political core together with other governmental institutions like the Prime Minister (OPM) and the ruling party NRM. Political communication in Uganda is primarily determined by two broker blocks that link political actors with the political core. The political broker position is occupied by MFPED and NARO who mediate between donor organizations and the political core, whereas the technical broker (UNFFE, PSFU) primarily send expert information received by research and interest groups to the governmental organizations. All four actors exhibiting broker positions have been identified as especially influential in the reputation network.

Similarly to Ghana, the ministry of agriculture in Senegal constitutes a block by itself. However, the MAER is primarily linked with the technical and political broker and loosely connected with the political periphery. The technical broker block comprises the two research organizations ISRA and ITA who occupy a gate-keeper position for research organizations and governmental institutions (including the National Assemblee) with whom they exchange expert knowledge on a mutual basis. The political broker position is occupied by two ministries (including MEF) and with AFD, USAID, and CEDEAO three important international organizations. Interestingly, the large peripheral group of stakeholders is not only

comprised of the majority of donor organizations and agricultural interest groups, but also consist of six governmental actors including the president and the prime minister.

As indicated by global densities of 0.21 and 0.23, the exchange of political support is comparatively intense in Ghana and Uganda, whereas it is less pronounced in Senegal (0.16). Nevertheless, these densities indicate particularly dense lobbying networks in these countries⁹. We find that lobbying activities are primarily determined by few political actors who obtain central position within the support network in all three countries. Donor organizations are particularly engaged in lobbying central governmental institutions. In contrast to Senegal, political support is directed towards the leading ministries in Ghana and Uganda. In Ghana, lobbying activities are determined by three stakeholder groups. Located at the center of political support are the main governmental institutions (MOFA, MOFEP, PRES). Donor organizations engage actively in the exchange of political support with the leading governmental organizations and constitute the only group that exhibits significant intra-block densities (0.83). The other block that is closely connected with governmental institutions is comprised of one actor only who obtains a broker position by linking peripheral stakeholders with the ministries. This position is occupied by ISSER which is in stark contrast to its peripheral position in the communication network. Furthermore, the exposed position of ISSER in the support network contradicts our assumption that research organizations are primarily engaged in knowledge provision.

The lobbying structure in Uganda is similar to the pattern identified in the communication network. However, instead of building a block with leading governmental institutions, MAAIF is structural equivalent to agricultural interest groups and is only connected with two broker blocks who establish the main support path with political actors. These two broker positions are occupied by the same actors who determine the exchange of expert information. Holding the political broker position in the communication network, MFPED and NARO also channel political support between MAAIF and peripheral organizations. Donor organizations are directly linked with MFPED and NARO, while also approaching the two organizations that constitute the technical broker block in the communication network, i.e. UNFFE and PSFU.

In contrast to Ghana and Uganda, lobbying activities are comparatively weak in Senegal. The structure of political support is primarily determined by two organizations. As opposed to Ghana and Uganda, the ministry of agriculture is not the receiver of political support in Senegal. With USAID and ISRA we identify a donor and a research organization who act as a gatekeeper to the central political organizations in Senegal. Both organizations constitute a block on their own and are engaged in mutual exchange of political support. ISRA and USAID both send political support to the political core which is comprised of the president, the prime minister and the national assemblee, as well as two donor and two supranational institutions. Whereas ISRA constitutes the only significant link to the

⁹In the seminal work by Knoke et al. (1996) the support networks of the U.S., Germany, and Japan yield densities of 0.04, 0.05, and 0.05, respectively.

MAER and primarily receives political support which it passes on to the political core, USAID is characterized by mutual exchange of support.

Analyzing the provision of expert information and the exchange of political support yields interesting insights into the role of different stakeholder groups within the CAADP policy domain. While this analysis remains on a descriptive level, the application of a theoretically founded framework enables us to provide more details on the influence structures and distribution of political power. The cross country comparison of the own network multipliers is especially interesting. Based on an actor's own control these values are indicative of the relative importance of an actor's expertise compared to expert information received from other organizations. In all three countries, research organizations consider themselves as technical leaders with high political knowledge and are thus less open to information provided by other stakeholders. In Ghana political parties and ministries trust their own expertise the most. Donor organizations and iNGOs report a comparatively high own control, whereas agricultural interest groups and especially public agencies and CSOs are more open to expert information. In contrast to Ghana, farm interest groups and CSOs in Uganda and Senegal consider themselves as experts in agricultural policy whereas international organizations put more weight on information provided by other stakeholders, which is also reflected in the influence profiles.

The calculated influence profiles aggregated by stakeholder groups yield different results for Ghana, Uganda, and Senegal. Governmental institutions exert the highest influence in Ghana and Uganda with average influence shares of 38% and 33%, respectively. Stakeholders in Senegal are primarily influenced by research organizations (43%). Furthermore, Uganda exhibits a particularly high influence of agricultural interest groups whereas they are less influential in Ghana and Senegal. The disaggregation of governmental influence reveals that the major share of influence in Ghana is held by MOFA (12%), whereas public agencies are the most influential stakeholder group in Uganda and Senegal with average values of 14% and 10%, respectively.

The very high influence of governmental organizations is also reflected in the large shares of belief and lobbying power held by the executive. Combining the banzhaf power indices with the network multipliers calculated from the communication and support network yields the respective power distribution. In general, the distribution of belief- and lobbying power depends on the organizational affiliation of political actors as assumed. As already indicated by the influence profiles, the executive yields the highest power shares in all three countries. However, the executive comprises next to the ministries also the president who does not appear as especially influential in the influence profiles and whose large share in belief and lobbying power is thus primarily the result of the chosen legislative scenario (i.e. DUO). Please note that the mean of belief and lobbying power including the executive yield identical values in all three countries. This however results from the fact that it is simply the average of 46 actors in Ghana and Senegal and 43 actors in Uganda, respectively, in the policy domain. As the sum of political power equals 1, the average is just 1/46 and 1/43, respectively.

We find research organizations to be primarily engaged in the provision of expert

knowledge and thus achieving comparatively high values in belief power in all three countries. Donor organizations are subject to greater variation. While they appear as strong lobbyist in Ghana as expected, the majority of donor organizations exhibits below average values in both power indices in Uganda whereas they hold comparatively more belief power in Uganda. Furthermore, we identify individual actors representing the civil society organizations and the agricultural sector to hold comparatively large shares in lobbying power in Uganda and Senegal, respectively, which is also reflected in the distribution of total power.

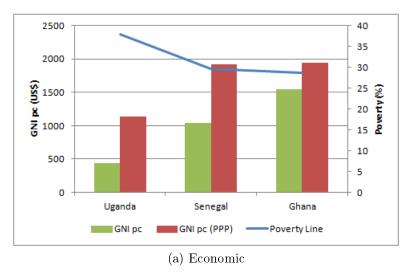
Combining the original voting power from the political bargaining game with the multipliers of the communication and support network yields the total political power of an actor. The executive holds the major share of total power in all countries. In Ghana, the total power is primarily distributed among the executive, research and donor organizations whereas research organizations hold a comparatively large share in Senegal. In Uganda, agricultural interest groups obtain significant power shares while the executive is considerably less equipped with total power compared to Ghana and Senegal.

9.2. Network Structure and Government Performance

In the previous section we provided a comparative analysis of the central results from the descriptive policy network analysis. While this analysis gives a sound overview of the political influence structures operating in the three countries, we now want to focus on the indicators derived in chapter 4. We assume that government performance is a monotonous function of government accountability, government capture, political ownership and political knowledge. The hypothesis of a monotonous function simply implies that more participation equals more benefits. A higher level of participation increases the ability to hold government officials accountable for their actions and reduces government capture. Furthermore, participation of stakeholder organizations leads to ownership over the policy process which reduces transaction costs of implementation. The inclusion of stakeholders in the policy process and the resulting increase in political knowledge further leads to more efficient policy choices. According to the relevant literature, the beneficial properties of political participation result in improved government actions, which leads the way to sound economic and political performance.

In chapter 4 we derived network-based indicators to measure political participation. However, while these indicators enable a quantitative assessment of the level of political participation in the countries under investigation we still do not know much about the effects on government performance. For example, we would like to know how different levels of participation affect the performance. This would allow for the derivation of optimal political participation in different contexts. Does government performance increase if we observe a higher level of government accountability or is a low level of government capture the crucial factor? How is government performance connected with political ownership? In order to address these interesting questions we combine the participation indicators with government performance. However, performance is generally difficult to measure. Therefore we use relevant economic and political indices to differentiate between

the case countries in order to approximate the performance of the respective government.



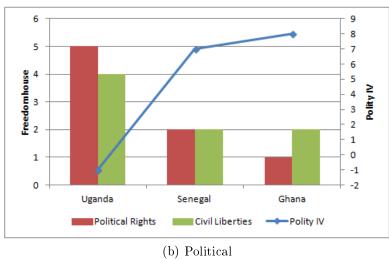


Figure 9.1.: Economic and Political Performance (2012) Source: illustrated by author based on different data sets.

Figure 9.1 displays the relevant performance indices for Ghana, Senegal, and Uganda. In terms of economic development we include the gross national income (GNI) per capita both nominal and in purchasing power parities (PPP). The poverty line reflects the percentage of population living on less than US\$ 1 a day (in 1985 prices, adjusted for purchasing power parity).

The measure of political performance includes the Freedom House Indices of Political Rights and Civil Liberties (Freedom House, 2014) as well as the Polity IV index (Marshall et al., 2012). It is worth noting that a degree of 1 in Political Rights and Civil Liberties indicates a great degree of freedom. In contrast, a high Polity IV score represents democratic structures whereas a low score is indicative of an anocracy or autocracy.

Based on Figure 9.1 we identify an increase in government performance from Uganda to Senegal in both economic and political terms. Uganda represents the

least developed country in our sample. The GNI per capita in purchasing power (2012) is with US\$ 1140 considerably lower compared to Senegal (US\$ 1920) and Ghana (US\$ 1940) who both exhibit similar values. Furthermore, Uganda accounts for the highest poverty rate among the three countries. With a head-count ratio of 38% Uganda reports a significantly higher share of the poor and exceeds Senegal (29.6%) and Ghana (28.6%) by roughly 10 percentage points.

The pattern of economic development is also observed in the political performance. Both Ghana and Senegal are considered a democracy with Polity IV scores of 8 and 7, respectively, whereas Uganda is classified as a closed anocracy (-1) according to Marshall et al. (2012). Political and civil liberties are significantly less pronounced in Uganda with scores of 5 and 4, respectively. Contrary to Uganda, Senegal exhibits a value of 2 for both indices which is exceeded by Ghana. While the civil liberties are at the same level (2) as in Senegal, the population of Ghana enjoys the highest political rights with a political rights score of 1.

While Ghana and Uganda are relatively similar in terms of political and economic development Uganda clearly lags behind. Given these performance indicators we would expect considerable differences in the applied participation indicators in the cross-country comparison, especially between Uganda on the one hand and Ghana and Senegal on the other.

According to the relevant literature of political economy theory one of the main reasons for poor political performance in developing countries are biased incentives, i.e. a lack of government accountability and government capture (Keefer and Khemani, 2005; Bardhan and Mookherjee, 2002). A lack of government accountability arises when elected politicians have not enough incentives to implement sound policies that benefit their electorate but rather serve their self-interests. Government capture complies with biased electoral competition in favor of particular interests. According to Keefer and Khemani (2005) missing incentives of politicians are the result of imperfections in political markets that are facilitated by information asymmetries, social polarization, and the inability to make credible promises in elections. According to the theory of biased incentives we expect distinct degrees in the two developed participation indicators of government accountability and government capture in line with the observed government performance.

Figures 9.2 and 9.3 present the results of the two indicators applied to the country case studies of Uganda, Senegal, and Ghana. We do not identify the expected patterns, i.e. the results of both indicators yield no indication of the expected relationship between accountability and capture on the one hand and government performance on the other. In fact, we identify similarities between Senegal and Ghana, whereas the structure of government accountability is significantly different in the case of Uganda. The distribution of political control in Ghana and Senegal is primarily determined by influential stakeholders representing the society and donor organizations whereas the industry is comparatively less significant in both countries. Uganda on the other hand is characterized by a weak position of donor organizations while both the society and the industry are able to hold the government accountable for its actions.

The society is comparatively well represented in all three countries as indicated

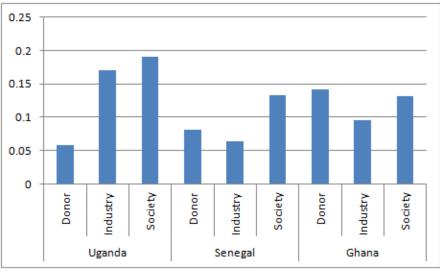
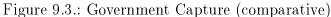
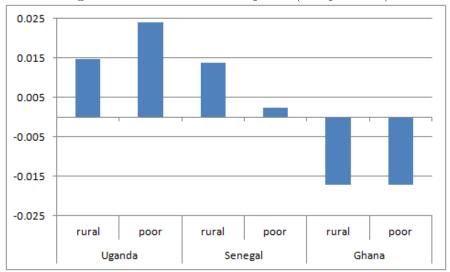


Figure 9.2.: Government Accountability (comparative)





by accountability indices of 13% (Ghana and Senegal) and 19% (Uganda). The government of Ghana appears to be primarily accountable towards donor organizations implying that these are better able to control government actions and policy choices which might undermine ownership of national stakeholders. While this might be an indication of a donor-led policy process, governments of Uganda and Senegal are both primarily accountable towards the society, implying that governmental actions and policy decisions particularly reflect the desires of domestic stakeholders. The similarly large share of political control held by the society and the industry in Uganda might induce a conflict of interests between the two domestic stakeholder groups even though it implies a bottom-up policy process.

We cannot confirm the theory of biased incentives as the accountability indicator yields mixed results for the three countries. According to the literature on

participatory processes, the inclusion of stakeholder organizations in the policy process leads to improved government performance by increasing government accountability. Thus, we would have expected to identify an increase in the degree of accountability that represents the performance of the three countries. Ghana is the high performer in our sample, followed closely by Senegal. Comparing the share of control held by the society in these three countries reveals that the least developed country exhibits the highest value. In fact, the same holds true for the industry. Interestingly, both advanced economies exhibit a rather balanced distribution of political control. In Ghana, donor organizations even hold the largest share of government accountability whereas their position in Uganda is clearly outweighed by the society and the industry.

The second indicator that is expected to reveal biased incentives in political decision-making, i.e. government capture, is displayed in Figure 9.3. We do not identify a monotonous decrease in the capture indicators that correspond to improved government performance. The observed values are only marginal and contradict the assumption that biased incentives shape government performance in the three case countries. We identify a bias against the rural poor in Ghana, whereas both Uganda and Senegal yield positive capture indices. The capture is primarily determined by the executive in Ghana and Uganda leading to a bias in favor of the rich and urban in Ghana and towards the rural poor in Uganda. In Senegal, the bias in favor of the rural poor is dominated by agricultural producers and research organizations as we find opposing positions within the executive which offsets the diverting interests of the president and the ministries. However, these values are considerably small and range between 1.48% in favor of the poor in Uganda and -1.5% against the rural poor in Ghana and cannot explain the significant differences observed in government performance.

In general, we find no evidence for the theory of biased incentives according to our measurement of government accountability and government capture. If biased incentives were the determining factor of poor government performance we expected to find evidence in the two applied indicators, at least between Uganda and Ghana where the differences in the economic and political indices are especially pronounced.

Political ownership is the third indicator developed to measure participation. It corresponds to the concept that the society identifies with a specific policy which increases the commitment to accomplishing the envisaged policy goals. Increased citizen compliance decreases implementation costs and hence increase the effectiveness of the implemented policies. While ownership by stakeholder organizations is increasingly emphasized in the literature there has been no attempt to quantitatively measure political ownership to the best of our knowledge.

Figure 9.4 depicts the ownership indicators for all three countries. According to our definition of political ownership, the participation of stakeholders in the policy process significantly reduces the political conflict leading to higher political consensus among stakeholder organizations in Ghana and Senegal. Especially donor organizations are able to decrease the level of political conflict in these two countries. In contrast, the political consensus of the society and the industry in Uganda is only marginally increased. Donor organizations even yield negative

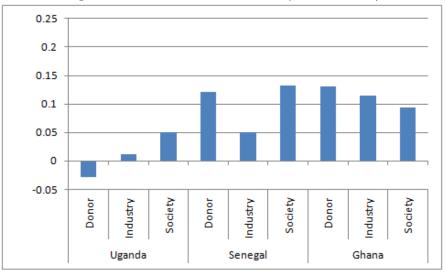


Figure 9.4.: Political Ownership (comparative)

values implying that a consensual policy process leads to a final policy that is less favored by these organizations. The results show that the involvement of stakeholder organizations leads to an increase in political ownership that corresponds to the observed level of government performance. Comparing stepwise the degree of ownership across the three countries we find a steady increase of ownership from Uganda up to Ghana. In Uganda, donor organizations exhibit a decrease in political ownership (-2.8%) whereas they gain considerably from participation in the policy process in Senegal (12%) and Ghana (13.1%). The industry in Uganda denotes a small increase in ownership (1.2%) which is exceeded by the industry in Senegal (5.1%) and especially in Ghana with 11%. The society in Uganda yields the highest increase in political ownership (5%) compared to donor organizations and the industry. Again, the values achieved in Senegal and Ghana are significantly higher. Interestingly, the society in Senegal exhibits greater ownership (13.2%) than the society in Ghana (9.4%). However, government performance does not vary too much in both countries and we can conclude that this indicator represents the economic and political differences between the three case countries pretty well. Rather than biased incentives, political ownership appears to be the most important dimension in participatory processes according to our results.

Though briefly covered in chapter 4, a central issue of stakeholder participation has been neglected so far in our analysis. Including relevant stakeholder organizations in the policy process yields access to knowledge that enables evidence-based and efficient policy decisions. Grassroots knowledge may enhance the capacity to meet local needs and priorities. Furthermore, the integration of scientific and local knowledge may induce a comprehensive understanding of complex development processes.

Due to a lack of empirical data we did not include knowledge in the country studies. Nevertheless, we are able to shed light on this issue by drawing on the theoretically derived relation of knowledge and political influence (see Henning, forthcoming; Henning et al., 2016). The knowledge-bias is minimized and hence optimally adopted if the ratio of total power equals just the ratio of knowledge of

two actors. Even without relevant data we are able to comment on the distribution of knowledge by examining the ratio of total political influence of stakeholders.

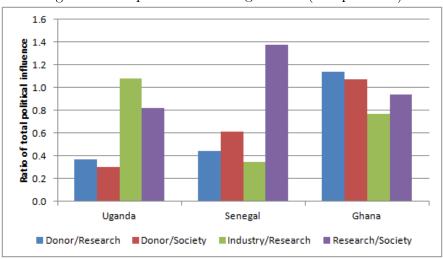


Figure 9.5.: Optimal Knowledge Ratio (comparative)

Figure 9.5 displays the ratio of total political influence among stakeholder groups. We apply the same grouping as in the previous analysis and include donor organizations, the industry, and the society. Furthermore, we add research organizations as they are the primary distributors of expert knowledge. Theoretically, the ratio of influence represents the ratio of political knowledge in the optimum. Thus the bar plot in Figure 9.5 represents the optimal knowledge distribution given the influence structure in these countries. Taking research organizations as a benchmark we find clear differences among the three countries. The results imply that the industry in Uganda has more knowledge about agricultural policy making than research organizations as indicated by an Industry/Research-ratio of 1.08. This seems quite unlikely as the industry is rather assumed to engage in lobbying activities. In contrast to Uganda, the industry exhibits the lowest weight whereas research organizations have more knowledge compared to other stakeholders. This is an indicator for evidence-based policy making. Ghana exhibits more balanced influence ratios. According to the assumption that the influence ratio represents the knowledge ratio, donor organizations stand out and appear to have more expert knowledge than research organizations or the society.

In general, we conclude that the indicator of political ownership represents the government performance the best. According to the theoretical knowledge ratio, tendencies of evidence-based influence structures are found among the high-performing countries of Senegal and Ghana whereas Uganda exhibits significant influence by the industry. Furthermore, our findings yield no evidence that incentive-biases are the determining factor of poor government performance. According to our analysis political ownership as a result of stakeholder participation increases efficiency whereas a knowledge-bias may prevent economic and political development.

9.3. Limits of Networks

While social network analysis and the theoretically derived indicators provide a sound basis for a quantitative assessment of stakeholder participation in the CAADP policy reform in particular, the question of interpretation and generalization of the results derived from the empirical network data arises. Hence, testing the robustness of the empirically-identified policy network structure is important. Empirical network studies are often criticized because collected network data is plagued by high measurement errors. One core issue of measurement errors are missing data (Marsden, 1990). Another form of measurement errors in the context of social network analysis refers to mistakes in collecting or coding in a network data set. Wang et al. (2012) classify six different error scenarios as a result of inconsistencies in data collection and coding. For example, data collection via snowball sampling tends to underestimate the total membership of groups under study (Erickson, 1979), and non-response from surveys (Stork and Richards, 1992) may cause 'false negative nodes', i.e. the absence of nodes in a network that should be present. In contrast, respondent bias may lead to an overrepresentation of certain elements due to underreporting nodes and relations (Feld and Carter, 2002). The same applies to 'false negative edges' as a result of respondents' imperfect recall, or 'false positive edges' if respondents report relations that are not actually present. Wang et al. (2012) classify two more error scenarios that result from false aggregation and disaggregation, which are less common and hence not considered.

A common procedure to evaluate biases due to measurement errors and missing data in quantitative network data is to simulate network errors from observed data (see e.g. Borgatti et al., 2006; Kossinets, 2006; Smith and Moody, 2013). However, false nodes and edges are not our primary concern. The data collection using snowball sampling has proven useful in past studies and as long as we are not able to collect complete networks this remains the procedure of choice. As to false edges, we consider only confirmed network ties between actors. If one actor states a particular relationship to another actor and this other actor confirms the relationship, both actors form a tie (see chapter 5). While this still leaves space for measurement errors as we disregard a stated tie if it is not confirmed by both actors, it reduces the possibility of measurement errors and we confidently disregard the presence of false positive or negative edges in our framework. The main concern lies in network dynamics. Quantitative network data are static and represent a snapshot of current ties between actors in the network, which is an often-voiced criticism of network research (Watts, 2004). Thus, the question remains in how far the results of the derived participation measures are robust to changing network structures.

In a recent study, Henning et al. (2016) apply an exponential random graph model (ERGM) to identify the factors that determine the emergence of policy network structures based on an econometric estimation of the policy network generating process. Analyzing determinants of the formation of policy network ties and applying econometric models is not a new approach (e.g. see Carpenter et al. (2004); Adam and Kriesi (2007); Weible et al. (2010)). In particular, the ERGM-model has already been used to analyze determinants of political commu-

nication and participation in industrialized countries (Henry et al., 2011; Leifeld and Schneider, 2012; Lee et al., 2012).

Henning et al. (2016) extend these approaches and draw statistical inferences on the political influence of specific non-governmental organizations, e.g. donor versus research versus grassroots organizations. In particular, they empirically tested if different organizations apply different influence mechanisms, e.g. research organizations specialize in providing expert information, while interest groups or grassroots organizations specialize in providing political support to the government. Further, they tested empirically to what extend political influence in development politics is dominated by international donor organizations dictating governmental policies via strategically granted development funds. Although the emergence of policy network ties is an interesting social phenomena in itself, the theory of the formation of policy network ties is of particular interest because it enables the design of policy network structures, which imply a more efficient political decision-making process. Moreover, an econometric estimation of the network generating process allows to draw statistical inferences on empirically-derived network measures. The simulation algorithm to obtain parameter estimates can also be used for model evaluation. In particular, they apply the same MCMC (Markov-Chain Monte Carlo Simulation) algorithm to generate a random sample based on the estimated ERGM models. Each random sample comprises 10,000 networks for all three countries which is then compared with the observed network to evaluate goodness-of-fit statistics.

Following Henning et al. (2016), we apply the ERGM-MCM framework to test the derived participation measures of Governmental Accountability, Governmental Capture, and Political Ownership for robustness. In particular, we generate a sample of 10,000 influence vectors containing an influence measure for each organization and each policy network in all three countries. Given our sampling procedure, the sample means represent the empirical influence of individual organizations derived from the observed network. Accordingly, we apply the derived participation indices and calculate confidence intervals and variances for each specific organization type. We further aggregate the organization types to reflect the assessment of participation in the country case studies, i.e. society, industry, and donor organizations.

9.3.1. Methodological Approach

A proper statistical model is needed to infer the driving factors of network tie formation. These features have to be considered during model formulation because social networks typically show patterns of tie variable interdependence like reciprocity or triangulation. A well established model class for social networks is the ERGM framework developed by Wasserman and Pattison (1996) and modified by Snijders et al. (2006). Lusher et al., eds (2013) illustrate a wide range of ERGM applications. This gives a detailed introduction to ERGM theory. This model class can represent the structure and the driving factors of a network by using an a priori defined set of sufficient network statistics. These network statistics are sub-graphs representing particular patterns of social behavior, and this allows for

the modeling of the endogenous self-organization of a network. The model can also represent the influence of exogenous covariates on network tie formation.

Let y denote a $n \times n$ directed adjacency matrix on a set of n nodes. Then, $y_{i,j} = 1$ if actor i sends a directed tie to actor j, $y_{i,j} = 0$ else. As y is a digraph and $y_{i,j} \neq y_{j,i}$ results in an asymmetric adjacency matrix. Self-ties are not permitted, and the diagonal of y is always empty. The \mathcal{Y} is the set of all possible graphs on a fixed set of n nodes. Further, let X be an $n \times n \times q$ array of exogenous covariates like the preference similarity of two nodes (a dyadic attribute) or the type of an organization (a nodal attribute).

Here, $s(X, y) = (s_1(X, y), \dots, s_p(X, y))'$ is a known vector of p = r + q sufficient network statistics that may contain r endogenous configurations of network self organization and q exogenous covariates. The r endogenous sufficient statistics are network counts for directed sub-graph configurations like multiple triangles, two-paths or star configurations; see also Robins et al. (2007) for a detailed introduction to the ERGM framework.

The probability density function of an ERGM can be formulated as

$$\Pr(y|X) = \frac{\exp\{\theta s(X,y)\}}{\sum_{\tilde{y}\in\mathcal{Y}} \exp\{\theta s(X,\tilde{y})\}},$$
(9.1)

where $\theta = (\theta_1, \dots, \theta_p)$.

The normalizing constant $\sum_{\tilde{y} \in \mathcal{Y}} \exp \{\theta s(X, \tilde{y})\}\$ ensures that Eq. (9.1) is a probability distribution and requires summation over all possible network realizations in \mathcal{Y} . The most appropriate a priori set of sufficient statistics has to be chosen before an ERGM can be estimated. This choice depends on the research question and the underlying hypotheses on the network tie formation. With regard to interpretation, a positive and significant parameter value of a configuration indicates higher occurrence of that network configuration than by chance. A negative and significant parameter indicates lower occurrence than by chance. Due to the enormous number of possible realizations in \mathcal{Y} , the normalizing constant is intractable even for networks of moderate size. This makes parameter estimation difficult within the ERGM framework. The analytical evaluation of the normalizing constant can be circumvented via a simulation based on the Markov Chain Monte Carlo Maximum Likelihood (MCMC ML) approach, see Snijders (2002) and Hunter and Handcock (2006). Random graphs are sampled to approximate the likelihood function. This results in an ML estimate of the model parameters θ by maximizing the simulated likelihood. The MCMC ML estimation of the ERGM family is a computational intensive task frequently complicated by nonconvergence of the sampling algorithm. The convergence strongly depends on the choice of the network configurations and how they are parameterized, see Snijders et al. (2006). The MCMC ML ERGM estimation was done using the R (R Development Core Team, 2012) package ergm (Hunter et al., 2008) included in the statnet environment, see Handcock et al. (2008). The baseline parameter spec-

 $^{^{10}}$ Model estimation was done using 10,000 effective MCMC network simulations, based on a total chain length of 1,000,000 draws and a thinning interval of 100 after discarding the first $1024 \cdot 16$ simulations (ergm package default). The algorithm was allowed to restart and re-

ification is based on Leifeld and Schneider (2012). Similar results were achieved with a Bayesian approach of ERGM estimation using the R package bergm, see Caimo and Friel (2014).

9.3.2. Data and variables

The ERGM framework can test our hypotheses on the determinants of political support relations and expert information exchange among governmental and non-governmental organizations in Ghana, Senegal and Uganda. Accordingly, we used confirmed expert information exchange and political support network ties as dependent variables, respectively. Two models were estimated for each dependent variable: An endogenous model containing only endogenous network effects and a structural model containing the same endogenous effects plus exogenous nodal and dyadic attributes as a control. In detail, we calculated various network statistics corresponding to the hypothesized mechanisms of endogenous tie formation. Table A.19 gives an overview of the network statistics used as model terms. This explains the internal self-organizing structure of the dependent network variable. Counts for edges (EDGES) can model the general propensity of tie formation and is comparable to the intercept in a logistic regression framework providing the unconditional probability of tie formation. Technically, the term EDGES adds one network statistic equal to the number of edges in the network. The number of reciprocal edges (MUTUAL) represents the tendency to answer received ties, i.e. this term adds one network statistic to the model and equals the number of pairs of actors i and j for which both ties exist $(y_{ij} = y_{ji} = 1)$. The geometrically weighted edgewise shared partner statistic (GWESP) and the geometrically weighted dyad wise shared partner statistic (GWDSP) are used to model effects of triadic transitivity on transaction costs. These statistics are formally defined as (Snijders et al., 2006; Hunter and Handcock, 2006):

$$GWESP = e^{\alpha_v} \sum_{h=1}^{n-2} \left(1 - \left(1 - e^{-\alpha_v}\right)^h\right) EP(h),$$
 (9.2)

$$GWDSP = e^{\alpha_w} \sum_{h=1}^{n-2} \left(1 - \left(1 - e^{-\alpha_w} \right)^h \right) DP(h), \tag{9.3}$$

where EP(h) is the number of directed edges that are the basis for h transitive triads. Therefore $y_{i,j} = 1$ and i, j must be connected via h two-paths, e.g. $y_{i,k}y_{k,j}$ so that i, j share exactly h neighbors. This can be imagined as stacking h transitive triads having the base edge $y_{i,j} = 1$ in common.

The DP(h) is the count of pairs of nodes i, j that are connected by h two-paths. Unlike EP(h), the i, j do not have to be connected directly. Therefore EP(h) is nested in DP(h). The GWESP represents multiple triangulation and the propensity to form closed clustered structures, contrasted by GWDSP representing multiple two-paths. A positive GWESP and a negative GWDSP parameter can be

parametrize up to 1,000 times if non-convergence was detected. Otherwise default settings were used.

interpreted as a propensity to avoid structural holes like four-cycles see Lee et al. (2012). The two shared partner statistics use a geometrical series $(1 - e^{\alpha_v})^h$ and $(1 - e^{\alpha_w})^h$ to weight the importance of additional common neighbors. α_v and α_w are tuning parameters-large values increase the weight on a large number of shared partners, e.g., see Hunter and Handcock (2006). For our analysis, they were both chosen to be fixed at relatively low baseline values of $\alpha_v = \alpha_w = 0.1$. This facilitates model estimation but risks the underestimation of the relevance of configurations with many shared partners.¹¹ For a discussion of the parameterization of these multiple network statistics, see Snijders et al. (2006), Hunter and Handcock (2006), and Hunter (2007). For more details, on sufficient network statistics and the analysis of policy networks, see Robins et al. (2012).

Following our theoretical considerations, three different categories of determinants of policy network ties exist: factors determining (1) actors' benefits derived form an established tie, (2) the cost of establishing and maintaining a tie and (3) transaction costs of political interaction. As described above, the endogenous network statistics are considered relevant determinants of dyadic specific transaction costs involved with political support or expert information exchange, respectively. Furthermore, EDGES and MUTUAL can also be interpreted as indicators of the costs establishing and maintaining network ties. Additionally, while established network ties can also be used to engage in new political interactions, we include the support and the expert networks as explanatory variables for each other. The expert structural model includes the support network as an explanatory edge attribute (SUPPORT) and vice versa. The support structural model includes the expert information network as an explanatory edge attribute (EXPERT). Technically, the term EXPERT (SUPPORT) adds a single network statistic to the ERGM model of the support network (the ERGM model of the expert information network) equals the sum of confirmed expert information ties (the sum of confirmed political support ties) that exist for all edges in the support (the expert information) network.

Beyond network statistics, we include the following exogenous covariates as nodal and edge specific attribute effects into the estimate:

To assess the costs of establishing and maintaining network ties, we use the number of overlapping memberships in umbrella organizations or political committees with other organizations as an indicator of meeting opportunities. The corresponding edge-specific network statistic (*MEMBER*) equals the sum of overlapping memberships for all edges in the network.

Furthermore, as discussed above, we include perceived power and political knowledge as indicators for the benefit actors. It is not straightforward to measure political decision-making power, and we use the collected reputation network data to identify an organization's perceived political power. Technically, we calculated the normalized indegrees of the reputation network as an informal power measure of an organization. Accordingly, we added a nodal specific network statistic (POWER) to the ERGM, which equals the sum of reputation power of all or-

¹¹The tuning parameters can be fixed or may be a free parameter to be estimated. Such a parameterization can be analyzed using a *curved* ERGM, see Hunter and Handcock (2006), complicating estimation even more and increasing the risk of non-convergence.

ganizations that receive a tie in the network. Furthermore, we included a nodal attribute effect (*EXEC*) representing ties where the target is a governmental organization to check whether tie formation is driven by formal political power. Technically, the latter term counts the number of edges in the network for which a governmental organization is the receiver of a tie.

As explained above the benefit from received information is driven by the political knowledge of the sender, while the benefit of received political support tie is c.p. the higher, the larger the capacity to mobilize voters of an organization is. It is impossible to observe political knowledge or the capacity to mobilize voters directly, and thus we use organizational dummy variables as proxies for these variables. Hence, we include two additional nodal attribute effects (RESEARCH) and (DONOR) representing ties where the sending node is a research organization, or a donor organization respectively. Again, the corresponding network statistics equal the sum of edges in the network for which the sending node is a research or a donor organization, respectively. In particular, we expect that organizations demand expert information primarily from scientific organizations because they are technically knowledgeable; We further expect politicians to demand political support from donors because these organizations often control international development funds granted to national governments, e.g. in selected African states 40% of total CAADP expenditures comprises of donor funds (Benin et al., forthcoming).

Finally, we include different measures of political homophily as indicators of dyadic specific transaction costs. In particular, we include a measure of similarity of policy preference. As explained above, policy preferences included the actors' political interests and positions in various policy issues nested in three levels. For a first homophily measure, we use top level preferences regarding policy concerns. In particular, we constructed a dissimilarity matrix by calculating the following political distance index for each pair of organization i and j

$$DI_{ij} = \sqrt{\sum_{k=1}^{K} (d_{ik} - d_{jk})^2},$$

where d_{ik} denotes the interest of individual i in policy concern k. Interest was ascertained by distributing 100 points across policy concerns. The dissimilarity measure was converted into a dyad specific similarity index (PREFSIM) via $(\max_{i,j} \{DI_{ij}\} - DI_{ij})$.

We calculated an analogous homophily index (*POLSIM*) for collected policy positions regarding organizations' preferred budget allocations across CAADP sub-programs. Thus the index *POLSIM* measures the similarity of organizations' preferred positions regarding detailed CAADP-implementations, while the index *PREFSIM* measures the similarity of the organizations' fundamental ideological position.

¹²Overall, we considered seven policy concerns: Z_1 = Welfare of small-scale farmers, Z_2 = Poverty reduction, Z_3 = Provision of public goods, Z_4 = Profits in agricultural export sectors, Z_5 = Welfare of urban consumer households Z_6 = Profits of non-agricultural sectors, Z_7 = Environmental protection.

Young democracies are often characterized by weakly developed interest mediation structures, i.e. governmental organizations grant only slight access to interest groups representing political interest of the society. Thus, we introduced a dyad specific binary variable (IG) to check whether polycentric governance structures are especially focused on coalition building among interest groups. The latter could be interpreted as empirical evidence that political conflicts between society and the governing elite are still more important than political conflict lines running between different social groups, e.g. labor versus capital. Here, the corresponding advocacy coalitions comprise both opposing social groups and their political leaders.

The term IG adds one network statistic that counts the edges in the networks where both vertices are socio-economic interest groups.

To deal with missing information we proceed as follows. Given our collected support network data, we were partly unable to calculate confirmed support relations between the two governmental or two non-governmental organizations, i.e. by design governmental organizations were only asked to mark other organizations from whom they receive political support, while vice-versa non-governmental organizations could only mark other organizations to whom they supply political support. It has become evident during the interviews that political support is indirectly exchanged and organizations at least partly function as brokers. The confirmation of ties within the corresponding political supply network is not feasible given the design of our questionnaire. Therefore, we used a collected social network to confirm political support ties between two governmental or two nongovernmental organizations because this network data was missing by design ¹³. Missing data on political preferences have been imputed using expert knowledge. The robustness of this approach has been checked repeatedly by hot deck imputations from actors belonging to the same type of organization and by imputing random draws from Dirichlet distributions. These random draws are specified to have the expert imputations as expected values. Model estimation using the different imputed data sets provided the same results, indicating the robustness of the expert imputation approach.

9.3.3. Results

Figures 9.6 to 9.8 display the results of the derived indicators applied to the sample of estimated networks. The bar plots represent the mean values over the 10,000 networks in each country for the group of stakeholder organizations defined earlier for governmental accountability (Figure 9.6) and political ownership (Figure 9.8) as well as for the capture towards the rural and poor in all three countries. The thin lines mark the 95% confidence intervals for the respective cases. Furthermore, we included the results of the empirical indicators which are indicated by the red lines in the plots.

We identify clear differences in terms of accountability between Ghana and Senegal on the one hand and Uganda on the other (Figure 9.6). In Ghana and Senegal, the government is particularly accountable towards donor organizations

¹³We observe missing network data only for the support network in 25 cases in Ghana, 19 cases in Senegal and 18 cases in Uganda.

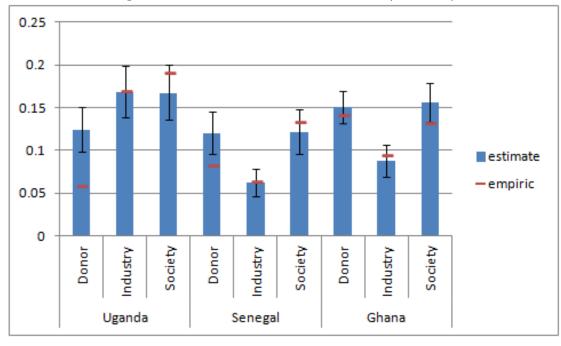


Figure 9.6.: Government Accountability (estimate)

and the society, whereas the industry yields a comparatively lower share. In contrast, the government of Uganda is particularly accountable towards the industry and the society, whereas donor organizations appear to be of less significance.

The 95% confidence intervals exhibit only minor oscillations in all three countries and indicate robustness of our accountability measure. Moreover, the majority of the empirical results lie within the confidence interval which validates the finding in the case studies. The empirical results appear to overrepresent the donor organizations in Uganda and Senegal. In the empirical study, the discrepancy in the accountability of the Ugandan government towards donor organizations and towards the society is more pronounced, whereas the empirical accountability towards the industry is clearly well represented by the network estimation. Compared to Ghana and Senegal, the government in Uganda gives off considerably more political control to stakeholder organizations as indicated by Figure 9.6. All three stakeholder groups exhibit higher values in Uganda than in the two other countries. One of the key objectives in participatory policy making, which is also emphasized in the literature, is the ability to hold the government accountable for its actions. Our findings from the empirical as well as from the estimated networks indicate a high degree of stakeholder participation in Uganda.

As we can see in Figure 9.7, our measure of governmental capture is quite unstable. On the one hand, the capture indicators of the estimated networks exhibit very low values ranging from -1.1% for the rural population in Senegal to 1.1% for the rural and poor in Uganda. The 95% confidence interval displays extreme oscillations around the mean. This indicates that our measure of biased decision-making towards particular interest groups is not robust. Additionally, the empirical indicators for Ghana and Uganda are contrary to the estimated mean and are not within the confidence interval.

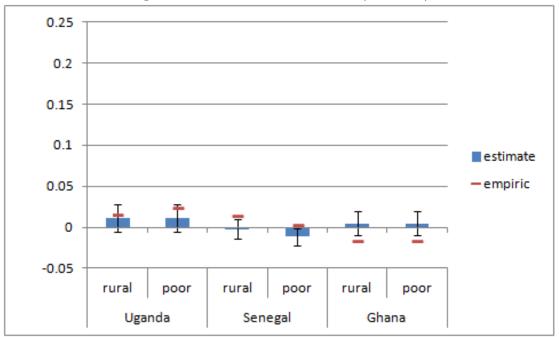


Figure 9.7.: Government Capture (estimate)

Ownership of the policies is probably the most central objective within participatory processes. According to Zimmermann et al. (2009), participation and ownership go hand in hand and one could argue that ownership is the outcome of the participation process. Figure 9.8 displays the increase in political ownership of the society, industry, and donor organizations in all three countries as a result of participation in the CAADP policy domain. Again, we identify clear differences between Ghana and Senegal on the one hand and Uganda on the other. The increase in ownership of donor organizations and the society is especially pronounced in Ghana and Senegal. The industry is comparatively more involved in the decision-making process in Ghana and is also able to decrease the political conflict in Senegal. These findings stand in stark contrast to the results obtained for Uganda where the society reaches a level of ownership similar to the industry in Senegal. The industry in Uganda yields only marginal growth rates in ownership. The most striking result is the weak performance of donor organizations in Uganda who appear to lose from participation. They experience an increase in the political conflict as indicated by a negative mean ownership. The 95% confidence intervals exhibit only little oscillations and indicate a strong level robustness of our ownership measure. Moreover, the majority of the empirical values lie within the confidence interval which validates the finding in the case studies. While the empirical finding appears to underrepresent the society in Ghana and the industry in Uganda, both donor organizations and the society seem to be slightly overrepresented. Overall, the derived indicator seems to be a robust measure for the increased ownership implied by stakeholder participation. One of the central concerns in the literature are conflicting interests especially when multiple stakeholders are involved in the process. White (1996) took account of the interest-dimension in her framework and demonstrated that stakeholders do not

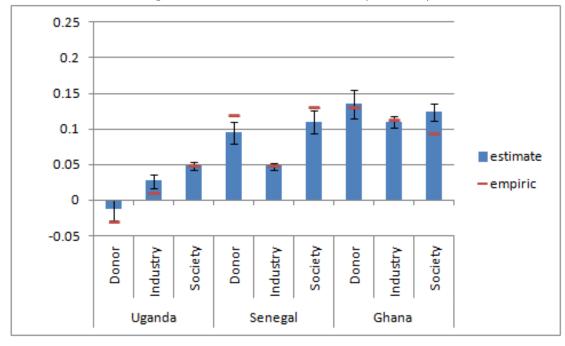


Figure 9.8.: Political Ownership (estimate)

share the same expectations of participation. Our measure of ownership takes account of this. Stakeholder do not share the same expectations of participation, neither do they necessarily agree in their interest in a particular policy nor in the favored policy position.

This chapter provided an extensive overview of the level of political participation, the pattern of communication and lobbying activities, and the influence structure in the CAADP policy domain. Moreover, we combined government performance with the results of the participation indicators in a cross country analysis and tested the results for robustness. The next chapter extends this work by investigating the donor-recipient relation in the process of knowledge interaction. We apply the network approach in the context of the Advocacy Coalition Framework which enables us to test the theory of belief formation in communication networks against observed policy beliefs.

Chapter 10.

Policy Beliefs and Networks - A Tale of Two Worlds?

So far, we argued that the development literature concerned with participatory policy processes is primarily based on qualitative methods. Thus, we propose theoretically based indicators that allow to quantitatively assess participation and enable a comparative perspective. However, the value added by qualitative approaches in reflecting the concerns raised by policy makers and stakeholders in political practice is undisputed.

In our theoretical framework, stakeholder influence on a policy position originates from two sources: political support and the provision of expert information. The latter includes belief-formation through communication and is based on social influence theory. Under the assumption of uncertainty in regards of the true political technology, political actors form beliefs how policies turn into outcome to make rational policy-decisions.

A second approach that explicitly considers political beliefs as the drivers of policy-making is the Advocacy Coalition Framework (ACF) by Sabatier and Jenkins-Smith (1993). A belief system includes implicit theories about how to achieve certain objectives as well as causal relationships. Political actors that share a set of normative and causal beliefs are grouped into an advocacy coalition that act together based on shared beliefs.

While frameworks based on social-influence theory explicitly incorporate how actors of a policy subsystem form beliefs, the ACF identifies coalitions based on observed beliefs derived from in-depth interviews and is thus able to reflect policy issues arising in political practice. By combining both approaches in the context of quantitative network analysis we are able to test the validity of our theoretical belief-formation module against the belief system located in political practice. More precisely, we test the underlying theory that belief formation occurs in networks via communication. We examine the empirical communication network for similarities with coalitions identified within an ACF context in Ghana, Uganda, and Senegal.

Building on the discussion about the failure of foreign aid and the dominance of aid agencies in the development discourse, we advance the understanding of the donor-recipient relation by analyzing the role of stakeholders in the process of knowledge interaction.

10.1. Introduction

In our assessment of participatory policies we particularly included the group of donor organizations. We found that donors hold a significant share of governmental accountability and are able to increase political ownership through participation. While one might conclude that ownership of donor organizations increases at the expense of the general public, one argument in favor of the explicit participation of donors is the contribution to evidence-based policy-making. In Sub-Sahara African countries, statistical data is often weak or absent. Thus, additional information available through the participation of donor organizations can be of high value as long as it is not biased by particular interests (Zimmermann et al., 2009). Especially the potential dominance of donors induced by development funds makes the informational influence on national policies delicate when advice and conditionality are difficult to segregate.

The role of donors in developing countries remains a widely debated subject in the development literature. Historically, development assistance has failed to achieve its main objectives. A number of empirical studies show that foreign aid has no effect on economic growth or poverty reduction (see Boone, 1996; Svensson, 1999; Knack, 2001; Easterly et al., 2004). Many countries that received aid conditional on policy change did not develop as expected. Corruption and poor institutional development as well as bureaucratic failures and inefficiencies in the recipient countries are often quoted as determinants of the poor macroeconomic effects of aid assistance (The World Bank, 1998). Even though it is well known that foreign aid may be beneficial if distributed to countries with sound macroeconomic policies and democratic structures, there is no evidence that aid causes the adoption of 'good' policies (Burnside and Dollar, 2000). Neither has aid allocation by donor countries proved to be in favor of democratic levels or good institutions in recipient countries. Strategic interest of donor countries were often the determining factor of aid distribution instead (Alesina and Dollar, 2000). Furthermore, foreign aid and political conditionalities have been associated with a decline in the quality of governance. High levels of aid may reduce the need for taxes of governments (Rajan and Subramanian, 2007), increase aid-related corruption (Svensson, 2000), and lead to institutional destruction, perverse incentives, and collective action problems (Bräutigam and Knack, 2004). The expectation of aid itself may suffice to increase rent dissipation and reduce public spending (Svensson, 2000).

While the scientific discourse is still dominated by questions concerning the effectiveness and determinants of foreign aid, the significance of knowledge in development and communication between donor organizations and recipient countries have long been neglected.

According to Easterly (2007) the failure of development assistance originates from insufficient knowledge of how to achieve development, the persistence of aid and advice despite this lack of knowledge, and the overrated role of development experts. Okolie (2003) criticizes the dominance of aid agencies in the policy process and the supremacy of the 'western' vision on development that leaves little space for indigenous knowledge and practices and has led to a 'Development Hegemony' in Africa. Weiler (2009) argues that standardized efforts at development have established their own hierarchies of knowledge. Certain kinds of knowledge claim a higher status and greater influence over other kinds regardless of relevance or connection to the developmental problems. Both donors and recipients must obtain the necessary information to actually target and achieve desired goals. Due

to a lack of information and the inability to tap into local knowledge donors are unable to coordinate foreign aid policy successfully (Williamson, 2010).

Policy conditionalities often imply that donor organizations force certain policies onto unwilling governments - policies which may not be the only option or even the most appropriate for the particular country (Dijkstra, 2002). Unsworth (2009) points out that donors' approaches to development have remained largely technocratic and stresses the importance of political economy approaches in development policy.

However, aid agencies may have difficulties to apply political economy approaches as they have a different perception of proper development policy (Hout, 2012), and 'there is little evidence that it is prompting them to question their (mostly implicit) assumptions about how development happens' (Unsworth, 2009, p. 884).

Lately, knowledge and learning have received increased attention in development practice¹⁴. Though mainly focused on a conceptual, theoretical, and narrative level, emphasis has been put on specific knowledge forms that influence development policies and programs. Jones et al. (2013b) present a framework to analyze the knowledge-policy interface which is influenced by four dimensions: the political context, the relative strength of actors involved, the different types of knowledge, and the process of knowledge interaction. The role of political actors in the knowledge-policy interface and the policy process more broadly is shaped by actors' interests, beliefs and values, and the ability to make credible knowledge claims. Jones et al. describe three different types of knowledge, i.e. research-based, practice-informed, and participatory, which have to be carefully balanced as an over-reliance on technical knowledge can lead to technocratic policy-making (see also Unsworth, 2009).

Recent theoretical developments on the role of knowledge in the policy process focus on politics and legitimization and argue that power is infused throughout the knowledge process and integrates three intertwined types of relations: actors and networks, institutions, and discourse (Jones, 2009)¹⁵.

However, there is still a lack of empirical work on the role of different types and sources of knowledge and the influence of different actors in development policy making.

In a recent study, Mockshell and Birner (2015) identify policy beliefs of different stakeholders involved in the agricultural policy making process with regard to different policy instruments based on in-depth interviews in Ghana and Uganda. Using the qualitative method of discourse analysis they first identify metaphors and story-lines which are aggregated into policy themes subsequently. Factor analysis and a following cluster analysis within the context of the Advocacy Coalition Framework yield two discourse coalitions, i.e. the 'donor' and the 'domestic' coalition, as well as the respective policy beliefs. Mockshell and Birner (2015) find that 'domestic' stakeholders have substantially different policy beliefs than stakeholders in the 'donor' coalition and conclude that it is essential to foster

¹⁴For an extensive review see e.g. Ferguson et al. (2010), Jones (2009); Jones et al. (2013b), Valters (2014), and Akude (2014).

¹⁵In a similar way Sumner and Harpham (2008) describe the essence of frameworks to analyze policy-making processes (see 2.2)

policy dialogues between the 'Donor World' and the 'Domestic World' in order to bridge the gap between the prevailing policy beliefs.

This analysis highlights the importance of the intrinsic policy position and the individual comprehension of political coherence that each stakeholder involved in the policy formulation process has in mind. The mental model of political actors on the interrelation of policy instruments and policy goals are crucial next to strategic considerations and political interest - when it comes to adoption of certain policy choices.

The Advocacy Coalition Framework explicitly identifies policy beliefs as drivers of policy-making among stakeholder coalitions, whereas it is unable to provide a theoretical model of belief formation among actors involved in policy making. According to social influence theory individuals form their beliefs through communication (see section 3.2).

We extend the work by Mockshell and Birner (2015) by applying the network approach described in chapter 3. Based on a quantitative network survey carried out in Ghana, Uganda, and Senegal, we analyze the exchange of expert information between stakeholder organizations in political communication networks. Under the assumption that policy beliefs are driven by communication between political actors we test the communication structure of relevant stakeholder organizations for distinct patterns in accordance with the proposed donor and domestic coalitions.

The main objective of this chapter is the identification of the discourse coalitions within the quantitative communication network data of political actors. Hence, our research question is as follows: Are policy beliefs and communication patterns between political actors in one-to-one correspondence with each other? If we are able to detect significant coalition-patterns within the communication networks, this would further validate the theory-based module of informational influence within our framework and indicate the existence of the 'Two Worlds' identified by Mockshell and Birner.

Furthermore, this chapter targets the lack of empirical work in the context of knowledge in development. Combining quantitative network analysis with the results of an ACF we identify the role of stakeholders in the policy process and validate the influence of communication in the process of knowledge interaction, i.e. belief formation. The next section presents the hypotheses in line with our research question that guide the further procedure. In section 10.3 we describe the data as well as the data transformation that was necessary for this analysis. In Section 10.4 we present and discuss the results of our approach and conclude in section 10.5.

10.2. Approach and Hypotheses

In modern democracies, policy-making is characterized by the interaction between political actors as representatives of the general public, determined to create and maintain welfare by setting a political agenda, targeting policy concerns and taking decisions on how to achieve the formulated policy goals. In this decision-making process the political actors do not only comprise of governments officials

but rather involve public and private stakeholders alike. Different Stakeholders have different levels of power, different interests, and different resources. Deciding on a set of policy choices in a certain policy domain can be difficult to obtain and requires a good amount of negotiations and concessions of all stakeholders involved. Especially so when we consider policy-making in developing countries where conflicts of interests, or beliefs for that matter, arise not only within national governments but rather between international donors and national policy makers.

The network approach described in chapter 3 can help promote the understanding of the policy process as we learn about the interaction of stakeholders in the policy landscape, the structure of resource flows such as expert knowledge between and within important stakeholder groups, and the influence of different stakeholders in a certain policy domain that eventually determines the belief formation process. Based on the exchange model of political influence resources by Pappi and Henning (1999) we apply the concept of a corporate actor for which a person is selected as a representative to answer our interview question. The network survey carried out in Ghana, Uganda, and Senegal consists of many networks including expert knowledge, political support and reputation networks as well as interest in certain policy programs according to the CAADP pillars and the respective country programs. One of the key features in the exchange model by Pappi and Henning is the interest of a stakeholder in the provision of expert knowledge. The inflow of influence resources, e.g. expert knowledge, is then weighted by the relative interest and enables us to calculate network multipliers from which we derive political influence profiles.

This chapter lays the focus on the expert knowledge network only. The communication network consists of confirmed transfers of expert knowledge via communication among stakeholder organizations who are regarded as the most important or influential actors in the agricultural policy domain in the respective country. Following the notation in section 3.2, we define the set of actors involved in the communication network as the country's political elite E.

As our approach aims at the identification of the discourse coalitions discovered by Mockshell and Birner (2015) within our quantitative communication network we further distinguish between the subset of the 'donor' coalition, the subset of the 'domestic' coalition, and a subset 'other'.

The subsets 'donor' and 'domestic' relate to the respective discourse coalitions rather than the classification of stakeholder groups, as the 'donor' coalition is comprised not only of donor organizations but iNGOs or think tanks alike (see table 10.1). We include a third subgroup 'other' for the matter of completeness, as this subgroup refers to the stakeholders that have been interviewed by University of Kiel, but not by University of Hohenheim during the data collection.

Hypothesis 1 Identified communication is concentrated among identified Belief Clusters.

According to our research objective we assume that communication is more concentrated among identified clusters, i.e. 'donor' communicate with 'donor' more

often than with the 'domestic', and vice versa.

Without doubt, the simplest and most straightforward way to literally see differences in the communication structure between the 'donor' and 'domestic' coalitions is by depicting network graphs. By marking predefined subgroups with different symbols or colors it is easily possible to detect certain patterns within the network structure. As these graphs tend to become blurry with increasing network size it is recommended to relate to common network indicators in order to get a clearer picture.

One of the basic measures to describe a network is its density. The network density is the amount of ties realized in a given network proportional to the amount of all ties possible. It provides insights into the cohesion of an overall network or the intensity of exchange within a subgroup in the respective network. Being a relational measure the density of a network takes on values between 0 and 1, with 1 indicating that every actor within the respective (sub-)group is connected to each other.

As our interest lies in the density of the identified 'donor' and 'domestic' coalitions, we aggregate the stakeholders to subgroups accordingly and calculate coalition densities. Concentrated communication patterns according to our hypothesis would result either in identification of distinct donor- and domestic cliques in the network graphs and/or in higher network densities on the blockdiagonal.

Using a more sophisticated approach by applying blockmodel analysis, we transform the 'Belief Space' into a 'Belief Network' and test both the belief network and the communication network for structural equivalence which would result in

Hypothesis 2 Correspondence in 'Belief Space' and 'Communication Space'.

By examining the blockmembership of relevant stakeholders we are further able to test for association between stakeholders with the same communication structure and similar beliefs. The Belief Space refers to the results by Mockshell and Birner (2015), i.e. a matrix containing information on how often a certain stakeholder (rows) mentioned a particular policy theme (columns), if at all. Based on the idea of Discourse Network Analysis by Leifeld (2013), an approach that combines qualitative content analysis with social network analysis, we transform the Belief Space into the Belief Network. The Belief Space itself constitutes an affiliation network as it consists of actors being related to certain policy beliefs. As we are interested in the actor-actor relation rather than the actor-belief relation it is straightforward to turn to an adjacency network. Actors receive a tie if they have sufficiently overlapping policy beliefs.

More formally, let $A_i = a_1, a_2, ...a_n$ be the set of actors and let $P_j = p_1, p_2, ...p_m$ be the set of policy themes in our Belief Space B(ij). A given actor i occupies a position in the Belief Space B(ij) by holding a specific set of policy themes P_j . How often a policy theme is mentioned is equally insignificant as not mentioning a certain theme. To move from the affiliation network to the adjacency network we proceed in three steps: First, we row-normalize the Belief Space to get the relative weight an actor puts on each policy theme. Second, we multiply the relative policy theme overlap in each possible relation and create a square actor-actor matrix

that contains the sum of weighted relations between actors. In the third step we assign two actors a tie in the adjacency network if the weighted relation exceeds a certain degree. The result is the undirected Belief Network in which actors are connected by a conforming set of statements on policy themes, i.e. their policy beliefs. With two networks at hand, the communication network and the artificially constructed belief network, we are able to perform a blockmodel analysis over both networks simultaneously.

Performing the blockmodel analysis for the communication network and the artificial belief network simultaneously yields data on blockmembership for each stakeholder. Actors in the same block do not necessarily have a direct connection to each other, they rather share the same structural relation, i.e. all in- and outgoing connections, to all other stakeholders in the respective network. We use the sna-package developed by Butts (2008) for the statistical software 'R.' to perform our blockmodel analysis. The Hamming distances between all pairs of positions in the adjacency matrices are computed and classes are formed through hierarchical cluster analysis. The input graphs are reordered by class and blockmodel reduction is applied based on blockdensity.

Subsequently, we apply the chi square test for association across blockmembers of the communication and belief network to test whether the underlying structure of the networks correspond to each other, i.e. if there is a statistical relationship between stakeholders with the same communication structure and similar beliefs. Correspondence in the Belief Space and the Communication Space would yield unambiguous Donor- and Domestic Blocks in the reduced graphs for both networks as well as statistically significant relationships of the corresponding blockmemberships.

Our third hypothesis is based on the seminal work by Friedkin and Johnsen (1990) on Opinion and Social Influence and features sound theoretical foundation. Following the approach described in chapter 3.2 we calculate network multipliers from which we derive political influence profiles. Based on the discourse coalitions identified by Mockshell and Birner we assume

Hypothesis 3 Correspondence in Belief Cluster and Political Influence Profiles.

which would result in distinct profiles of the Donor and Domestic Coalitions as they are influenced by different stakeholder groups.

We specify the rule how individuals combine their own positions with positions communicated by others to form their final policy position according to the belief formation module in chapter 3.2 and suggest that individuals update their political position by taking weighted averages of their neighbors' position.

As we are interested in whether the influence profiles of the respective discourse coalitions show considerable differences we subtract actor i's weight on his own position m_{ii} in the multiplier matrix M. Row normalizing the multiplier matrix M yields the relative influence of actor j on actor i's final position. Aggregation of actors j in accordance to stakeholder groupings and subsequently taking means of actors i in reference to the 'Donor', 'Domestic', and 'Other' coalitions yields the matrix of political influence profiles, i.e. the total influence of a certain stake-

	Ghana (N=54*)			Uganda (N=48*)			$ m Senegal~(N=49)^*$		
	Domestic	Donor	Other	Domestic	Donor	Other	Domestic	Donor	Other
CSO	33.3	0	66.7	0	0	100	0	0	100
DONOR	0	57.1	42.9	0	$71.4^{\rm c}$	28.6	0	42.9	57.1
EXEC	58.3ª	0	41.7	$54.6^{\rm d}$	0	45.5	50^{e}	12.5	37.5
IG:AGIND	0	0	100	12.5	0	87.5	0	0	100
IG:NONAGRAR	0	0	100	0	0	100			
IG:PROD	25	0	75	33.3	0	66.7	50	0	50
iNGO	20	40	40	0	0	100	100	0	0
LEG	100	0	0	100	0	0	$100^{\rm f}$	0	0
PUBAG	0	0	100	0	0	100	20	0	80
RESEARCH	0	$44.4^{\rm b}$	55.6	60	20	20	$36.4^{\rm g}$	18.2	45.5
SUPRA							0	50	50

^aMinistry of Food and Agriculture [EXEC+6]

Table 10.1.: Stakeholder-Mapping (%)

holder group on an average actor in a given discourse coalition.

10.3. Data

The data for our analysis is based on the one hand on the results of in-depth interviews with political actors and subsequent analysis by University of Hohenheim and on the other hand on quantitative network data collected by University of Kiel in the context of the PEBAP-Project in Ghana, Uganda, and Senegal in the year 2012/2013.

The data on the communication networks has been collected in the framework of the elite network study which involves questions about networks, policy positions, and policy interests as decribed in chapter 5.

The data set provided by the University of Hohenheim comprises both a list of the stakeholder organizations interviewed and the corresponding policy beliefs identified as well as the assignment of stakeholders to the discourse coalitions¹⁶. In order to test our hypotheses we have to match the two data sets with regard to the stakeholders interviewed and the respective coalition memberships.

Table 10.1 displays the relative composition of stakeholder groups according to the identified coalitions. The group of 'Other' is again included in the mapping of stakeholders. However, we will ignore 'Other' for now as we are interested in the distribution of actors among the two coalitions only. The stakeholder mapping displays a clear partition of stakeholder organizations in the elite network survey across the two discourse coalitions. Organizations of DONOR classification are

^bUniversity of Ghana [RESEARCH+2]

^cMinistry of Agriculture [EXEC+4]

^dWorld Bank [DONOR+1]

^eMinistry of Agriculture and Rural Equipment [EXEC+1]

fAssemblee [LEG+1]

gUniversité Cheikh Anta Diop [RESEARCH+1]

¹⁶We would like to express our gratitude to Jonathan Mockshell and Christina Birner who kindly provided us with the data. For detailed information on data collection and analysis see Mockshell and Birner (2015)

exclusively in the Donor coalition in all three countries. Stakeholders with national interests like Civil Society Organizations (CSO) or interest groups (IG: AGIND, IG:PROD) as well as political actors (EXEC, LEG) are all located in the Domestic coalition. Senegal inhibits a special role as one EXEC is associated with the Donor coalition. It is not counter-intuitive that this particular governmental body happens to be the Ministry of Economy and Finance due to its close relation to donor agencies like World Bank or IMF. Internationally acting stakeholders such as iNGOs (Ghana) or RESEARCH organizations (Uganda and Senegal) are attached to both coalition clusters. RESEARCH is of particular interest as both National as well as International Research Organizations are covered (see Table 5.1). However, national research organizations such as AFRISA in Ghana or IPAR in Senegal happen to be in the Donor cluster whereas IFPRI switches from the Donor (Ghana and Senegal) to the Domestic coalition (Uganda).

The final data set for our analysis had to be adjusted to take account of the interview-pattern by University of Hohenheim. Within the framework of an elite network survey we understand the interviewee as an official representative of the respective organization and therefore each organization has been interviewed once following the concept of a corporate actor. In the data set subject to analysis provided by University of Hohenheim there have been interviews with multiple actors belonging to one organization. For example, University of Hohenheim conducted interviews with officials of seven different divisions within the Ministry of Food and Agriculture (MOFA) in Ghana whereas University of Kiel interviewed only one official representing the Ministry as a whole. To take this into account, we aligned the number of actors within the communication networks with the number of stakeholders in the discourse coalitions by adding actors to the network. In the case of Ghana for example, we adjusted the network by replicating the network ties of the Ministry of Food and Agriculture (MOFA) until the communication network had six additional nodes, i.e. ending up with MOFA1 - MOFA7. Organizations for which the data had to be adjusted and the extent of adjustments is noted in Table 10.1. Our final set of stakeholders comprises 54, 48 and 49 actors in Ghana, Uganda, and Senegal, respectively.

10.4. Results

Network Structure

In our first Hypothesis we assumed that communication is concentrated among the identified Belief Clusters. Therefore we matched the stakeholder organizations interviewed by both University of Kiel and University of Hohenheim and assigned the identified discourse coalitions accordingly.

Even though network graphs are intuitive, they tend to fail at providing a clear picture on the stakeholder relationships or any kind of coalition affiliation, especially if we have large networks as these graphs tend to become very unclear. That is the reason, why we only depicted the stakeholders that were interviewed both by Hohenheim and Kiel which match the two coalitions of interest rather than presenting the whole communication network that we collected. Figure 10.1 depicts the structure of the Ghanaian communication network. The nodes are

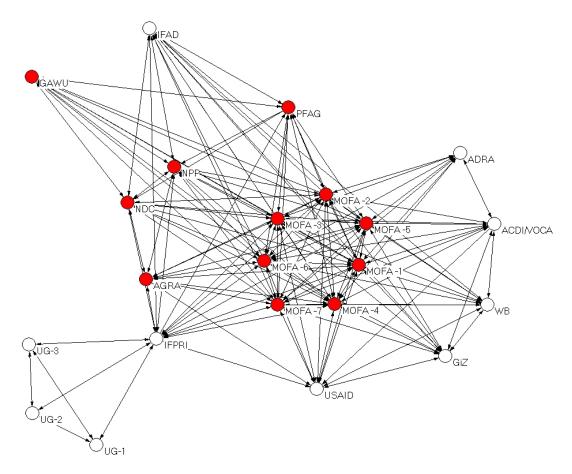


Figure 10.1.: Communication Network (Ghana)

colored according to the two coalition clusters (Donor=white, Domestic=red). We find that the Domestic coalition is central in the communication structure, whereas the Donor coalition is located in the periphery. This pattern points at the direction of different worlds according to Mockshell and Birner. However, in order to confirm our hypothesis of concentrated communication within the coalition clusters we would have expected a clear-cut network graph in which the Domestic coalition occupies for instance the left-hand side whereas the Donor coalition would be located on the right-hand side. This is not the case for Ghana. One interpretation of this pattern is, that stakeholders from both coalitions rely on the Domestic actors the most when it comes to getting access to valuable information.

The central role of the 'Domestic' stakeholders in Ghana is also reflected by the network density. The density of a network measures how many ties we observe in a network or a given subgraph of a network in relation to all ties possible. Network densities for all three countries are presented in Table 10.2. We calculated the share of all connections across and within the coalitions. Since the communication network is a directed network it follows naturally that the density matrix is non-symmetric. For our first hypothesis to hold we would have expected the highest values on the blockdiagonal of the density table for each country. In Ghana, the Domestic coalition exhibits an extraordinary high density (0.92), indicating that

	(Ghana		U	ganda		S	enegal	
Coalition	Domestic	Donor	Other	Domestic	Donor	Other	Domestic	Donor	Other
Domestic	0.92	0.46	0.52	0.46	0.45	0.36	0.38	0.36	0.34
Donor	0.42	0.33	0.15	0.29	0.67	0.18	0.42	0.55	0.30
Other	0.59	0.16	0.19	0.32	0.22	0.22	0.36	0.20	0.20

Table 10.2.: Network Density

almost all actors within the Domestic coalition are connected with each other in both directions. The density within the Donor coalition (0.33) is comparably weak. In fact, actors in the Donor coalition tend to rather call on the expertise of the Domestic coalition when they need expert information on agricultural policies as indicated by the Donor-Domestic density in Ghana (0.42). This reflects the pattern observed in the network graph for Ghana where the stakeholders belonging to the Domestic coalition are located in the center.

Turning to Uganda and Senegal for comparison we find a different picture. In the case of Uganda we do observe the highest values on the diagonal which confirms our hypothesis. Even though the density within the Domestic coalition (0.46) is only slightly higher than across the Domestic-Donor clusters (0.45) this finding is in line with our assumption. With a value of 0.67 the density within the Donor coalition marks the highest value for Uganda. This result is also reflected in the network graph for Uganda (see Figure A.5) in which we do identify different cliques for the Domestic and the Donor coalition. In terms of network densities, Uganda exhibits an inversed pattern of Ghana as the role of the coalitions is just the opposite, not only within but also across the coalitions. In Senegal, it appears that stakeholders in the domestic coalition do not approach other organizations as much as in Ghana or Uganda, neither within nor across coalitions. Like in Uganda, the density within the Donor coalition yields the highest value (0.55) in Senegal. Interestingly, members of the Donor coalition contact stakeholders of the Domestic coalition even more often (0.42) than Domestic-actors themselves (0.38). Nevertheless, as the diagonal exhibits the highest values we can confirm our hypothesis for the case of Senegal as well. This is also reflected in the network graph for Senegal (Figure A.4) even though the clique structure is not as clear cut as for Uganda.

Structural Equivalence

In our second hypothesis we assumed correspondence in the 'Belief Space' and the 'Communication Space'. To test this hypothesis we transformed the Belief Space into a Belief Network and analyzed both the Belief Network and the Communication Network for structural equivalence. Blockmodel analysis yields reduced graphs for both networks and enables us to test the resulting blockmemberships for statistical relationships between the belief and the communication network.

Figure 10.2 depicts the reduced graph of the communication and the artificially constructed belief network in Ghana. In this 4-block solution we can identify stakeholders that are structural equivalent through the corresponding blockmembership. The reduced network graph presents the information in the network data in simplified form. Actors who share the same block do not necessarily have a con-

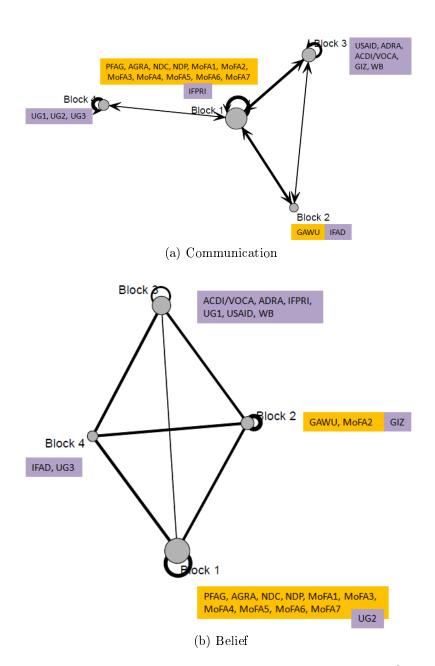


Figure 10.2.: Reduced Graphs: Communication and Belief (Ghana)

nection to each other, but rather are connected to the same others, i.e. they have the same social environment. The reduced graph of the communication network reveals an interesting pattern. Both Donor and Domestic stakeholders scatter over different blocks. The Domestic coalition acts as a broker between the remaining Donor-Blocks, a feature that we already identified in the coalition densities before. The reduced graph of the belief network reveals the same blockstructure that we find for the communication network. Apart from minor exceptions, the blockmembership remains almost the same, i.e. we find both coalitions in separate Blocks.

We further used the results of the blockmodel analysis, i.e. the corresponding blockmemberships of the communication network and the belief network, to determine whether we identify a statistical relationship between both networks. We applied the Pearson chi-square and the likelihood-ratio chi square test as measures of association and find highly significant correspondence of blockmembership for Ghana (Table 10.3). This is a positive signal as there appears to be a relationship between stakeholders that have a similar communication pattern and stakeholders that share similar beliefs.

Measure	Ghana	Uganda	Senegal
Pearson chi2(9)	23.506 (0.005)	14.768 (0.098)	24.858 (0.003)
likelihood-ratio $chi2(9)$	24.433 (0.004)	14.107 (0.119)	18.475 (0.030)
Fisher´s exact	0	0.065	0.031

Table 10.3.: Measures of Association

As we can already see from Table 10.3, we further find highly significant values for Senegal whereas the results for Uganda remain below the significance level. This is also evident from the reduced graphs for Uganda and Senegal. In Senegal we identify a large Domestic block (Block 2) in the reduced graph of the communication network whereas the remaining actors distribute evenly over the spare blocks. Interestingly, we find the Ministry of Economy and Finance (MEF) together in the same block with the World Bank (Block 1), a pattern that we noted earlier as the MEF has been assigned to the Donor coalition. The blockstructure changes slightly as we proceed to the belief network where we find both a large Domestic (Block 1) and a large Donor block. The blockmembership remains almost the same as indicated in table 10.3 already. As in the case of Ghana, the blockmodel analysis of Senegal's communication and belief network confirms our second hypothesis of correspondence in the 'Belief Space' and the 'Communication Space'.

In the case of Uganda we have to neglect our hypothesis as neither the reduced graphs nor the blockmemberships yield significant results.

Influence Profile

In our third hypothesis we assumed correspondence in Belief Clusters and Political Influence Profiles. Calculating network multipliers of the communication network enables us to derive stakeholder influence profiles in order to analyze to what

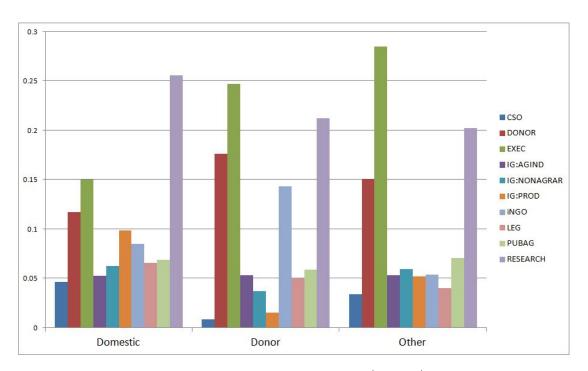


Figure 10.3.: Influence Profile (Ghana)

extent the actors in the donor and domestic coalitions are influenced by different stakeholder groups.

Figure 10.3 shows the influence profile in Ghana. The bars indicate the sum of influence that a particular stakeholder group has on the opinion of an average stakeholder in the Donor and Domestic Coalition. We identify a clear difference between the two coalitions in terms of influence. The three stakeholder groups with the biggest impact on both the Domestic and the Donor coalition are in decreasing order research organizations, the executive, and donor organizations. While RESEARCH has the biggest impact on the opinion of an average stakeholder in the Domestic coalition, the Donor coalition is influenced the most by EXEC. DONOR organizations have a bigger impact on the Donor coalition than on the Domestic Coalition. We confirm our hypothesis.

Research organizations are highly influential in Uganda (A.10). On both the Domestic as well as the Donor coalition, RESEARCH yields by far the highest influence. However, the Influence Profiles of both coalitions appear to be almost the same. The only difference we can make out is the magnitude of influence, the structure is more or less the same. We reject our hypothesis.

Compared to the Ghana and Uganda, RESEARCH is most influential in Senegal (A.11). The influence on the Domestic ,cCoalition is determined by EXEC, DONOR, CSO, and PUBAG, while the Donor Coalition is impacted most by DONOR and EXEC. We confirm our hypothesis.

10.5. Outlook & Discussion

Building on the discussion about the failure of foreign aid and the dominance of aid agencies in the development discourse, we advance the understanding of the donor-recipient relation by analyzing the role of stakeholders in the process of knowledge interaction.

Policy making is a dynamic process characterized by the interaction of many different stakeholders in the policy landscape. The decision-making is determined by policy beliefs held by political actors.

Defined as simple mental models applied by stakeholders to understand the complex relation between policies and policy outcomes, Mockshell and Birner find that domestic policy actors have substantially different policy beliefs than actors in the donor coalition. We extended the work by Mockshell and Birner by applying a widely acknowledged theoretical model of social influence.

Under the assumption that policy beliefs are determined by communication between political actors we applied a quantitative network approach to identify the structural patterns in the exchange of expert knowledge between relevant stakeholders in the agricultural policy domain of Ghana, Uganda, and Senegal. We tested three hypotheses to examine whether policy beliefs and communication patterns between political actors are in a one-to-one correspondence to each other. Using different methods of quantitative network analysis we found that the substantially different policy beliefs of the identified 'Donor' and 'Domestic' coalitions are subject to distinct communication patterns between political actors in Ghana, Uganda, and Senegal.

In line with our first hypothesis we found evidence that communication is concentrated among identified belief clusters in Uganda and Senegal. In the case of Ghana we had to reject our hypothesis as we observed a very dominant position of the 'Domestic' coalition. Stakeholders in the 'Donor' coalition relied to a greater extend on information disseminated by members of the 'Domestic' coalition. Blockmodel analysis and subsequent tests for association of the blockmemberships confirmed our second hypothesis in the case of Ghana and Senegal. In the case of Uganda we had to reject our hypothesis as neither the reduced graphs nor the blockmemberships yielded significant results. In order to test our third hypothesis we calculated network multipliers to derive political influence profiles. While the influence profiles in Uganda revealed no significant differences of the 'Donor' and 'Domestic' coalitions, we found clear evidence of distinct influence on both coalitions in Ghana and Senegal. In Ghana, the 'Donor' coalition is highly influenced by the executive, a pattern that is also reflected in the network densities where the 'Domestic' coalition is of particular importance for 'Donor' what led to the rejection of our first hypothesis.

All in all, we can confirm the findings of Mockshell and Birner. However, the structural properties of political communication in the agricultural policy domains in Ghana, Uganda, and Senegal do not quite reflect the strict 'black and white' pattern of the suggested 'Two Worlds' in agricultural policy making. Even though our findings reflect the segmentation of the two coalitions there appear to be more than two worlds.

Our analysis attempts to provide the recent conceptual work on knowledge and development with empirical evidence by investigating the relationship between political communication networks and policy beliefs. Our results underline the significance of political dialogue among stakeholders in the process of policy-making. Especially in the context of the principles set out in the Paris Declaration (2005). Communication is essential to bridge the gap between the distinct beliefs and provides the foundation to align policy concerns and policy choices in particular in order to create mutual accountability and ownership.

Chapter 11.

Summary and Discussion

11.1. Summary

The concept of stakeholder participation has become a critical approach in development policy and is still at the center of contemporary development discourse. Under the assumption that an active participation of stakeholders in the policy process leads the way to more democratic and effective governance, participation has become one of the most widely used concepts in development politics (Reed, 2008; Young, 1980; Pretty, 1995). It promotes the realization of democratic values or the empowerment of marginalized groups which benefits the democratic society, citizenship, and equity, and leads to a higher quality of political decisions and increased efficiency. In particular, central claims of stakeholder participation in policy processes are:

- increasing governmental accountability, i.e. the incentives for governmental agents to serve societal interest and needs (Keefer and Khemani, 2005)
- reducing government capture, i.e. government incentives to serve vested interests at the expense of the general public (Bardhan and Mookherjee, 2002)
- increasing policy ownership, i.e. citizens/civil society identify with and feel committed to governmental policy which can significantly reduce political implementation costs (Adsera et al., 2003)

Additionally, the inclusion of relevant stakeholders provides access to grassroots knowledge and may enhance the capacity to meet local needs and priorities, and allows a comprehensive understanding of complex development processes if local and scientific knowledge is combined. According to the relevant literature, the beneficial properties of political participation result in improved government actions and lead the way to sound economic and political performance. Approaches to assess participation are based on qualitative methods or remain vague and on a narrative level. Neither a clear concept nor a framework to quantitatively measure participation have been developed yet. A theoretical framework helps to understand how participation of non-governmental organizations in the policy process impact on the policy decisions to yield the claimed benefits. Moreover, a quantitative measurement of stakeholder participation is crucial to understand how participation translates into government performance, whose participation is needed to what extent, and may provide information on how the desired level of participation can be achieved.

We propose a theoretical framework based on micro-political theory that allows us to capture participation of non-governmental organizations in the political

decision-making process. Participation in the policy process implies that relevant stakeholder organizations have political power, i.e. they are able to exert influence on the final policy decision. Following interest group theory, non-governmental organizations obtain influence in the policy process via two channels: classical lobbying and expert information. The fundamental condition of interest group influence through the exchange of political support and expert information is access to political decision-makers. This condition is taken into account by applied policy network studies (Laumann and Knoke, 1987; Knoke et al., 1996; Pappi et al., 1995). We incorporate a lobbying module and a belief formation module in our framework that reflect the influence of policy networks on policy decisions. On a theoretical level, we follow Pappi and Henning (1998) who suggest the organization of political exchange in social networks, and Friedkin and Johnsen (1990) who propose a model of belief updating and information exchange in social networks. This enables us to illustrate the influence of non-governmental organizations on the final policy decisions and the derivation of network-based indicators to measure participation in policy processes. In particular, we present four indicators in reference to the literature on participation that enable the assessment of governmental accountability, government capture, political ownership, and political knowledge as a result of stakeholder participation in the policy process.

Using Ghana, Senegal, and Uganda as case-studies, we apply our framework based on empirical data collected within an elite network study conducted in these three countries in 2012-2013. The CAADP-reform process provides a good example to apply the network-based indicators of participation. The inclusion of local stakeholder organizations in planning, formulation and evaluation of sector-specific growth policies is a key principle of CAADP to enhance governmental accountability and political ownership, which provides the background for our quantitative assessment of stakeholder participation in agricultural policy processes in Sub-Sahara Africa.

In order to assess stakeholder participation in the three case countries we follow three steps:

First, we conduct a descriptive analysis of the network structures establishing the CAADP policy domain in Ghana, Senegal, and Uganda. Using standard methods of social network analysis we perform a blockmodel analysis to examine the policy networks for structural equivalence between the stakeholder organizations and identified actors who hold central positions in the respective networks. To evaluate the impact of political influence structures on different aspects of political performance we compute network multipliers derived from the communication and support networks that constitute the centerpiece of the political influence model. Subsequently, we derive influence profiles based on the network multipliers to identify influential stakeholder groups in the respective country. Combining the communication and support multiplier with legislative decision-making power we derive the informational influence and lobbying power as well as the total influence of individual stakeholders. Subsequently, we apply the theoretically founded participation indicators of government accountability, government capture, and political ownership empirically.

Secondly, we perform a comparative analysis. We provide an extensive overview of the level of political participation, the pattern of communication and lobbying activities, and the influence structure in the CAADP policy domain. Moreover, we combine government performance with the results of the participation indicators in a cross country analysis and test the results for robustness.

Thirdly, we test the underlying assumption of our theoretical framework that belief formation occurs through communication in networks. Therefore, we combine our theoretical belief formation module with the beliefs observed in the context of the Advocacy Coalition Framework (ACF).

Overall, we find that governmental organizations are the most influential actors in all three countries. Especially the Ministry of Agriculture is identified as a key player in the agricultural policy process. However, its significance varies enormously over the three countries. MOFA is the central organization determining political communication in Ghana and establishes the political core in the support network together with other central governmental organizations (e.g. the Ministry of Finance). They are primarily engaged in the exchange of political support with donor organizations and the national research institute ISSER. In contrast to Ghana, the political communication process in Senegal and Uganda is determined by stakeholder organizations that are also identified as extremely influential in the lobbying network. Among these are the two research organizations ISRA and ITA, the donor organization USAID, and the supranational CEDEAO in Senegal. In Uganda, these include the public agency NARO and the Ministry of Finance as well as the two interest groups UNFFE and PSFU.

These network structures are also reflected in the distribution of political influence. We distinguish between informational influence (i.e. belief power) and influence through political support (lobbying power). We find that the distribution of belief power and lobbying power depends on organizational affiliation, i.e. research organizations are likely to be more influential through the provision of expert information whereas donor organizations tend to exert influence through lobbying activities. This holds true especially for Ghana. In contrast, donor organizations are comparatively more engaged in knowledge provision in Senegal whereas they exhibit no significant influence in Uganda. This is primarily the result of the network structure in Uganda where the majority of donor organizations have no direct link to the Ministry of Agriculture. In terms of total influence the executive constitutes the most influential stakeholder group in all three countries. However, in Uganda the level of total political influence is much more balanced compared to Ghana and Senegal where the executive exhibits the highest influence share by far. While donor and research organizations exhibit almost equal influence shares in Ghana, research organizations are significantly more influential than donor organizations in Senegal. In contrast, the influence distribution in Uganda is considerably less pronounced. The executive is only half as influential compared to Ghana and Senegal and is at par with the agricultural sector (i.e. agribusiness and producers).

The empirical application of the developed indicators on country level yields mixed results and gains relevance when the results are compared in the cross country analysis against the background of governmental performance in the respective country. As government performance is generally difficult to measure we used relevant economic and political indices to differentiate between the case countries in order to approximate the performance of the respective government. We included the gross national income as well as the poverty head count index as measures for the economic development. The Freedom House indices of Political Rights and Civil Liberties as well as the Polity IV index were used to measure the political performance. Based on these indices we identified Ghana as the comparatively most advanced economy. While Senegal exhibits similar results to Ghana, Uganda is clearly the least developed economy both in political as well as in economic terms. Based on these indices we evaluated the empirical results of the participation indicators. Given these performance indices we expected considerable differences in the results of the applied participation indicators in the cross-country comparison, especially between Uganda on the one hand and Ghana and Senegal on the other.

The indicator of government accountability does not yield the expected results. The distribution of political control in Ghana and Senegal turns out to be primarily determined by influential stakeholders representing the society and donor organizations whereas the industry is comparatively less significant in both countries. Uganda on the other hand is characterized by a weak position of donor organizations while both the society and the industry appear to be able to hold the government accountable for its actions. Under the assumption that stakeholder participation in the policy process increases government accountability and hence leads to improved government performance this finding contradicts the theory that biased incentives are the main reason for poor governance. The second indicator that was expected to reveal biased incentives in political decision-making is the indicator of government capture. In general, the observed values of government capture are only marginal in all three countries. However, we identify a bias in favor of the rural poor in Uganda whereas the government of Ghana appears to be biased in favor of the urban rich.

The indicators of political ownership turns out as expected. We find that stake-holder participation in the policy process significantly reduces the political conflict in Ghana and Senegal whereas the level of consensus in Uganda records only a marginal increase. Furthermore, we use different political power ratios to approximate the distribution of political knowledge in the three countries and find signs for evidenced-based policies in Ghana and Senegal whereas the strong position of the industry indicates a knowledge-bias in Uganda.

To account for the often voiced criticism that empirical network studies are plagued by high measurement errors we test our empirical results for robustness by applying an ERGM-MCMC framework. We simulate network data and applied the participation indicators to the estimated networks. Both, the indicator of government accountability and of political ownership seem to be a robust measure and exhibit only minor oscillations. Moreover, the majority of the empirical values lie within the 95% confidence interval which validates the finding in the case studies. In contrast, the measure of government capture is unstable and exhibits significant oscillations around the mean. Additionally, the mean of the estimated networks is contrary to our empirical results.

To test the theory of belief formation we apply quantitative network analysis in the context of the Advocacy Coalition Framework. We investigate the relationship between political communication networks and observed policy beliefs and find evidence for distinct communication patterns between stakeholder groups that have been identified in the ACF. This finding further validates the theoretical framework of the network approach.

11.2. Discussion

We developed three network-based indicators derived from micro-political theory of which two proved to be robust. The indicator 'Government Capture' requires further elaboration. The indicator 'Political Ownership' is robust, but allows more for an assessment of the growth rate rather than for a quantification of the extent. For example, if we only observe a minor increase in political ownership this may be the result of primarily two processes. Either the stakeholder group is not an active participant in the policy process and therefore does not gain much when we assume a consensual policy process. In contrast, a neglectable shift in ownership might also be the result of a stakeholder group that is already very close to the final policy position.

In general, we conclude that our framework provides a good starting point for future research in participation in policy processes. In particular we consider the following issues to be worth of further investigation.

First: considering the network as a snapshot of the communication and lobbying structure in a particular country, how does this affect our results? The network estimation proves robustness of our derived indicators of political ownership and government accountability. Thus, we conclude that the network structure is the factor determining the extent of the empirical results. Relationships in the political stock exchange of support and expertise are well established and do not change quickly. Hence, we can assume even a snapshot to cover a certain time-frame.

We also survey the relative interest in particular policy issues, the favored policy position of an actor, the relative trust in her own expertise, and the relative importance she puts on the policy position supported by the majority of potential voters, i.e. to what extent is the decided policy position of an actor generally oriented towards the political support of stakeholder organizations. This is particular interesting when her position differs from the position supported by the majority of voters.

This implies, that the final position of an actor is influenced beforehand and observed in the empirical network. The actual final policy position is subject to uncertainty and merely the result of our model. Thus, if we evaluate the validity of the empirical results with the estimated network data, it is still subject to uncertainty. We include the interest in a policy issue as well as the policy position of an actor. Furthermore, we survey the trust in expertise as well as the interest in political support. However, the first two are theoretically the endogenous variables.

In an optimal setting we observe the establishment of a policy network.

Therefore, one issue for future research is the inclusion of a time dimension, which

enables a direct measurement of the initial policy position, the process of political communication and support, and the final policy position as a result thereof. The application of dynamic network analysis in the context of participatory policy processes provides a starting point for interesting research. Repeated surveys in a country in phase of legislative decision-making implies extensive effort. Experiments within stakeholder workshops establish a sound environment to collect the relevant empirical data. In a controlled setting it is possible to observe the process of communication between political actors over a relatively short time-frame, including representatives of governmental institutions, international organizations, and other stakeholder organizations involved in the policy process. Triggered with information and the incentive to communicate, the policy positions of stakeholders is repeatedly surveyed during the workshop. Analyzing the resulting change in the observed communication structure and the inclusion of lobbying activities by a computer-based political exchange game would yield valuable insights in the processes of participatory policy making.

Another interesting issue remaining for future research is the combination of empirical policy network analysis and economic performance. The assessment of the interdependency of political and economic performance with explicit consideration of the quantified participation patterns would allow to conclude on the implications of participation empirically, especially in a dynamic setting.

Analyzing the quality of participatory policy making in combination with quantifiable measures of participation provides a broad field for future research and enables not only the evaluation of participatory policy processes, but also to compare the level of participation of one country against the other. If we are able to observe these interdependencies over a greater period of time, ideally during the period of a particular policy reform, we can capture a dynamic participatory policy process that reflects the interrelationship between different levels of participation and shifting power structures. This creates new opportunities to attribute certain policy decisions to a shift in the policy structure as a result of the established policy networks and therewith an enabling environment for improved policy making.

Our work contributes to this by providing a framework to quantitatively assess participation to be build on and may spark further research on participatory policy processes, ideally in a dynamic setting.

Chapter 12.

Zusammenfassung

Das Konzept der Stakeholder Partizipation ist ein entscheidender Ansatz in der Entwicklungspolitik und steht nach wie vor im Zentrum des gegenwärtigen Entwicklungsdiskurses.

Unter der Annahme, dass eine aktive Teilnahme der Stakeholder an politischen Prozessen zu einer demokratischeren und effektiveren Regierungsführung beiträgt, ist Partizipation zu einem weitverbreiteten Konzept in der Entwicklungspolitik geworden. Zentrale Vorteile, die partizipativen Politikprozessen zugesprochen werden, beinhalten beispielsweise

- eine erhöhte Government Accountability, d.h. eine erhöhte Rechenschaftspflicht der Regierung steigert den Anreiz für Regierungsvertreter sich für gesellschaftliche Interessen und Bedürfnisse einzusetzen,
- eine geringere Government Capture, d.h. Anreize eigennützigen Verhaltens seitens der Regierungsvertreter auf Kosten der allgemeinen Bevölkerung werden minimiert, sowie eine
- eine Steigerung der *Political Ownership*, d.h. die Zivilgesellschaft und Interessengemeinschaften identifizieren und engagieren sich mit und für die Regierungspolitik, was erheblich die politischen Implementierungskosten senken könnte.

Darüber hinaus bietet die Inklusion relevanter Stakeholder Zugang zu Basiswissen, vermag die Fähigkeit lokalen Bedürfnissen und Prioritäten zu entsprechen zu erhöhen und erlaubt ein umfassendes Verständnis komplexer Entwicklungsprozesse wenn lokales Wissen mit wissenschaftlichen Erkenntnissen kombiniert wird. Der relevanten Literatur nach, liegen die Vorteile politischer Partizipation in verbesserten Regierungsprozessen, und sind maßgeblich entscheidend für eine einwandfreie wirtschaftliche und politische Leistungsfähigkeit. Versuche, Partizipation zu messen und zu bewerten bleiben jedoch vage und auf einem beschreibenden Niveau. Sich hauptsächlich auf qualitative Methoden stützend, fehlt es hier an klaren Messinstrumenten. Obwohl Stakeholder Partizipation in der Entwicklungspolitik kein neues Konzept ist und hoch auf der politischen Agenda verbleibt, wurde bislang weder ein klares Konzept noch ein geeigneter Rahmen geschaffen, um Partizipation quantitativ zu messen. Ein theoretischer Rahmen ist wesentlich für das Verständnis welchen Einfluss zivilgesellschaftliche Organisationen in politischen Prozessen und Politikentscheidungen haben, um den ihr zugesprochenen Nutzen zu erzielen. Weiterhin ist eine quantitative Messung der Stakeholder Partizipation unabdingbar um zu verstehen, wie sich die Partizipation in politische Leistung umsetzt, wessen Partizipation zu welchem Ausmaß notwendig ist, und könnte außerdem Aussagen darüber treffen, wie ein angestrebtes Ausmaß an Partizipation erzielt werden kann.

Wir schlagen einen theoretischen Rahmen basierend auf der mikro-polititischen Theorie vor, der es erlaubt, die Partizipation von Stakeholdern in politischen Entscheidungsfindungsprozessen zu erfassen. Partizipation an politischen Prozessen impliziert eine gewisse Macht seitens der relevanten Stakeholder Organisationen, d.h. Einfluss auf eine politische Entscheidung auszuüben. Nach der Interessengruppentheorie üben die Stakeholder Organisationen auf zweierlei Art ihren Einfluss aus: durch klassisches Lobbying und durch die Bereitstellung von Wissen. Voraussetzung für den Einfluss, den Interessensgruppen durch den Austausch von Unterstützung gegen Experteninformationen ausüben können, ist der Zugang zu politischen Entscheidungsträgern. Diese Bedingung kommt bei angewandten Netzwerkstudien zum Tragen(Laumann and Knoke, 1987; Knoke et al., 1996; Pappi et al., 1995). Wir haben in unserem theoretischen Rahmen ein Lobbying Modul und ein Belief Formation Modul integriert, welche den Einfluss von Netzwerken auf politische Entscheidungen wiederspiegeln. Auf theoretischer Ebene folgen wir Pappi and Henning (1998) die politischen Tausch in sozialen Netzwerken erklären, sowie Friedkin and Johnsen (1990), die ein Belief-Updating Modell und Austausch von Informationen in sozialen Netzwerken vorschlagen. Dies ermöglicht die Darstellung der Einflussnahme von Interessengemeinschaften auf die finale Politikentscheidung sowie die Ableitung netzwerkbasierter Indikatoren um Partizipation am Politikprozess zu messen.

Wir stellen vier auf der Literatur basierende Indikatoren vor, die eine Bewertung von Government Accountability, Government Capture, Political Ownership und politischem Wissen als Ergebnis von Stakeholder Partizipation ermöglichen.

Anhand empirischer Netzwerkdaten wenden wir den entwickelten Ansatz an den Fallbeispielen von Ghana, Senegal und Uganda an. Die empirischen Daten wurden in den drei Ländern im Jahr 2012/2013 im Rahmen einer Elitebefragung erhoben. Der CAADP Reformprozess stellt ein geeignetes Beispiel dar, um die entwickelten netzwerkbasierten Partizipationsindikatoren anzuwenden. Die Einbindung lokaler Stakeholder Organisationen in die Planung, Formulierung und Evaluierung sektorspezifischer Wachstumspolitiken ist ein Kernziel von CAADP und bereitet den Hintergrund der quantitativen Bewertung von Stakeholder Partizipation in Sub-Sahara Afrika.

Um die Stakeholder Partizipation in diesen Ländern zu untersuchen sind wir in drei Schritten vorgegangen: Zuerst führen wir eine deskriptiven Analyse der Netzwerkstrukturen in Ghana, Senegal und Uganda durch. Anhand einer Blockmodel Analyse werden die politischen Netzwerke auf strukturelle Äquivalenz zwischen den verschieden Stakeholder Organisation untersucht und Akteure identifiziert, die zentrale Positionen in den entsprechenden Netzwerken besetzen. Um die Auswirkungen von politischen Einflussstrukturen auf politische Performanz zu bewerten, werden Netzwerkindikatoren aus dem politischen Kommunikations- und Lobbyingnetzwerk abgleitet, die das Kernstück des politischen Einflussmodells darstellen. Die Verbindung von legislativer Entscheidungsgewalt mit den entsprechenden Multiplikatoren ermöglicht die Ableitung von Einflussmaßen individueller Organisationen. Anschließend werden die darauf aufbauenden Partizipationsindi-

katoren empirisch angewendet.

In dem zweiten Schritt wird in einer komparativen Analyse ein ausführlicher Überblick über die politischen Kommunikations- und Lobbying-Strukturen, das Ausmaß politischer Partizipation, sowie der politische Einfluss in dem CAADP Reformprozess der einzelnen Länder gegeben. Die Ergebnisse der Partizipationsindikatoren werden mit der entsprechenden Regierungsleistung in einer Cross-Country Analyse verbunden, um eine Aussage über deren Zusammenhang treffen zu können. Anschließend werden die Ergebnisse der Partizipationsindikatoren auf Fehlerrobustheit getestet.

In dem dritten Schritt wird die dem Netzwerkansatz zugrundeliegende Theorie von Belief Formation getestet. Die Verbindung des theoretischen Belief Formation Moduls mit den im Kontext eines Advocacy Coalition Framework beobachteten Beliefs ermöglicht eine Aussage über die Gültigkeit der Annahme, dass Belief Formation in Kommunikationsnetzwerken stattfindet. Entsprechend unseren Ergebnissen stellen Regierungsinstitutionen die einflussreichsten Teilnehmer an dem Politikprozessen in allen drei Ländern dar. Insbesondere die Landwirtschaftsministerien werden als Hauptakteure identifiziert, wobei das Ausmaß ihrer Bedeutung jedoch deutlich schwankt. MOFA ist der zentrale Akteur in dem politischen Kommunikationsprozess in Ghana und bildet zusammen mit anderen zentralen Regierungsinstitutionen (darunter auch das Finanzministerium) den politischen Kern des Lobbvingnetzwerkes. Dieser ist hauptsächlich in dem Austausch von politischer Unterstützung mit Gebergesellschaften und dem nationalen Forschungsinstitut ISSER tätig. Im Gegensatz zu Ghana wird die politische Kommunikation in dem Senegal und in Uganda von zivilgesellschaftlichen Organisationen bestimmt, die auch in dem Lobbyingnetzwerk von zentraler Bedeutung sind. Unter ihnen befinden sich sich die Forschungsinstitute ISRA und ITA, die Gebergesellschaft USAID sowie die supranationale Organisation CEDEAO im Senegal. In Uganda besetzen das NARO, das Finanzministerium, sowie die zwei Interessengruppen UNFFE und PSFU die zentralen Positionen in dem Politiknetzwerk.

Diese Netzwerkstrukturen spiegeln sich auch in der Streuung des politischen Einflusses wieder. Wir unterscheiden zwischen politischem Einfluss durch Bereitstellung von Expertenwissen (Informationseinfluss) und durch politische Unterstützung (Lobbyingeinfluss). Die Verteilung des Informations- und Lobbyingeinflusses ist bedingt durch die institutionelle Zugehörigkeit der Organisationen. So sind beispielsweise Forschungseinrichtungen eher durch die Bereitstellung von Experteninformationen, d.h. durch Informationseinfluss, gekennzeichnet, wohingegen Gebergesellschaften tendenziell durch Lobbyingaktivitäten an Einfluss gewinnen. Dies trifft insbesondere auf Ghana zu. Interessanterweise erringen Gebergesellschaften im Senegal eher einen Einfluss durch Informationsbereitstellung wohingegen sie in Uganda keinen signifikanten Einfluss verzeichnen. Dies ist insbesondere auf die Netzwerkstruktur in Uganda zurückzuführen, in dem die Mehrheit der Geber keinen direkten Zugang zu dem Landwirtschaftsministerium aufweist. Die Kombination aus Informations- und Lobbyingeinfluss ergibt den totalen Einfluss einer Organisation. Gemessen am totalen Einfluss ist die Exekutive in allen drei Ländern am einflussreichsten. Jedoch finden wir in Uganda eine eher gemäßigte Streuung des totalen politischen Einflusses, wohingegen Senegal und insbesondere

Ghana von einer extrem einflussreichen Exekutive gekennzeichnet sind. Gebergesellschaften und Forschungseinrichtungen verzeichnen ein ähnliches Einflussniveau in Ghana, wohingegen Forschungseinrichtungen in dem Senegal deutlich einflussreicher sind. Die Streuung des politischen Einflusses ist in Uganda deutlich weniger stark ausgeprägt. Die Exekutive hält lediglich halb so viel Einfluss verglichen mit Ghana und Uganda und ist auf einem Level mit dem Agrarsektor.

Die empirische Anwendung der entwickelten Partizipationsindikatoren auf Länderebene ergibt gemischte Ergebnisse und gewinnt erst an Relevanz in der komparativen Analyse vor dem Hintergrund der Regierungsleistung in den entsprechenden Ländern.

Regierungsleistung ist generell schwierig zu erfassen. Daher greifen wir auf relevante ökonomische und politische Indizes zurück, um die Regierungsleistung zu approximieren. Die verwendeten ökonomischen Indizes beinhalten das Bruttonationaleinkommen sowie die Armutslinie. Die Freedomhouse Indizes für Politische Rechte und Zivile Freiheit sowie der Polity IV Index repräsentieren die politische Performanz. Auf Basis dieser Indizes identifizieren wir Ghana als das fortschrittlichste und Uganda als das am schlechtesten entwickelte Land in unserer Analyse. Anhand dieser Einschätzung ist eine vergleichende Bewertung der durch die Indikatoren identifizierten Partizipation möglich. Aufgrund der Regierungsfürung erwarten wir deutliche Unterschiede in der Cross-Country Analyse, insbesondere zwischen Uganda und Ghana.

Die Accountability-Indikatoren erzielen nicht die erwarteten Resultate. Die Verteilung der politischen Kontrolle in Ghana und Senegal ist primär von einflussreichen Repräsentanten der Zivilgesellschaft und der Gebergesellschaften gekennzeichnet. Die Industrie ist vergleichsweise von geringer Bedeutung. Uganda hingegen ist durch eine schwache Position der Gebergesellschaften geprägt, wohingegen die Zivilgesellschaft und die Industrie in der Lage sind die Regierung für ihr Handeln zur Rechenschaft zu ziehen. Government Capture ist der zweite Indikator von dem wir erwarten verzerrte Anreize in der politischen Entscheidungsfindung aufzudecken. Jedoch sind die beobachteten Werte nur marginal für alle Länder. Wir finden eine Verzerrung zugunsten der armen ländlichen Bevölkerung in Uganda wohingegen die Regierung in Ghana von der reichen urbanen Bevölkerung gecaptured wird. Unter der Annahme, dass die politische Partizipation von Stakeholdern Government Accountability zu erhöhen vermag und dadurch zu einer besseren Regierungsführung führt, widersprechen die Ergebnisse der Theorie, dass die Anreizproblematik der Hauptgrund für schlechte Regerungsführung ist.

Der Indikator für Political Ownership erzielt die erwarteten Resultate. Stakeholder Partizipation führt zu einem beträchtlichen Rückgang des politischen Konflikts in Ghana und Senegal, wohingegen die Teilnahme am politischen Prozess in Uganda nur zu einem geringen Anstieg des politischen Konsensus führt.

Wir verwenden verschiedene politische Machtverhältnisse, um die Verteilung von politischem Wissen in den drei Ländern zu approximieren und finden Hinweise für eine evidenzbasierte Politik in Ghana und Senegal. Die starke Position der Industrie in Uganda zeugt hingegen von einer Wissensverzerrung der Politik.

Um die oft geäußerte Kritik zu berücksichtigen, dass empirische Netzwerkstudien häufig von hohen Messfehlern betroffen sind, werden die Ergebnisse auf Fehler-

robustheit getestet. Anhand eines ERGM-MCMC Ansatzes werden Netzwerke simuliert und die Partizipationsindikatoren angewendet. Sowohl der Indikator für Government Accountability sowie der Indikator für Political Ownership sind robuste Kennzahlen und verzeichnen nur geringe Schwankungen. Zudem liegt die Mehrheit der empirischen Werte in dem 95% Konfidenzintervall, was die Ergebnisse aus den Fallstudien validiert. Der Indikator für Government Capture ist instabil und weist starke Schwankungen um den Mittelwert auf und ist überdies gegensätzlich zu den empirischen Ergebnissen.

Um die Theorie der Belief Formation zu testen, wird quantitative Netzwerkanalyse im Kontext des Advocacy Coalition Framework angewendet. Die Resultate der Untersuchung von politischen Kommunikationsnetzwerken und beobachteten Beliefs weisen auf ausgeprägte Kommunikationsmuster unter den im ACF identifizierten Stakeholdergruppen hin. Dieses Ergebnis validiert zusätzlich den theoretischen Rahmen des Netzwerkansatzes.

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Appendix A.

Graphs and Tables

A.1. Ghana

Table A.1.: Most influential Actors (Ghana)

ID	Org	Group	IC
10103	MOFA	EXEC	1
10405	USAID	DONOR	0.96
10407	WB	DONOR	0.88
10402	CIDA	DONOR	0.84
10410	IFAD	DONOR	0.84
10124	GIDA	PUBAG	0.8
10131	NDPC	EXEC	0.8
10123	COCOBOD	PUBAG	0.76
10401	GiZ (GTZ)	DONOR	0.76
10505	AGRA	iNGO	0.76

Table A.2.: Indegree centrality: Reputation (Ghana)

Group	IC	Number
EXEC	0.71	6
PUBAG	0.69	5
$_{ m LEG}$	0.50	2
DONOR	0.79	7
iNGO	0.58	5
RESEARCH	0.54	7
IG:AGIND	0.42	4
IG:PROD	0.62	4
IG:NONAGRAR	0.45	3
CSO	0.53	3

Table A.3.: Overview: Actors (Ghana)

MOFA MLNR MEST MOTI	Ministry of Food & Agriculture Ministry of Lands and Natural Resources	EXEC
MEST	Ministry of Lands and Natural Resources	
		EXEC
MOTI	Ministry of Environment, Science & Technology	EXEC
	Ministry of Trade and Industry	EXEC
MOFEP	Ministry of Finance and Economic Planning	EXEC
EPA	Environmental Protection Agency	PUB
COCOBOD	Ghana Cocoa Board	PUB
GIDA	Ghana Irrigation Development Authority	PUB
NDPC	National Development Planning Commission	EXEC
LCG	Lands Commission Ghana	PUB
FiCG	Fisheries Commission Ghana	PUB
NDC	New Democratic Congress	LEG
NPP	New Patriotic Party	LEG
GiZ(GTZ)	Deutsche Gesellschaft für internationale Zusammenarbeit GmbH	DON
CIDÀ	Canadian International Development Agency	DON
AFD	Agence Française de Développement	DON
USAID	U. S. Agency for International Development	DON
WB	The World Bank	DON
FAO	Food and Agriculture Organization of the United Nations	DON
IFAD	International Fund for Agricultural Development	DON
AGRA	Alliance for a Green Revolution in Africa	iNGO
ACDI/VOCA	ACDI/VOCA	iNGO
TS	TechnoServe	iNGO
CRIG	Cocoa Research Institute of Ghana	RES
ISSER	Institute of Statistical, Social and Economic Research,	RES
10.0210	University of Ghana	1020
STEPRI	Science and Technology Policy Research Institute	RES
UG	College of Agriculture and Consumer Science University Ghana	RES
FARA	Forum for Agricultural Research in Africa	RES
IWMI	International Water Managment Institute	RES
IFPRI	International Food Policy Research Institute	RES
GAIDA	Ghana Agriculture Input Dealers Association	AG
GAABIC	Ghana Agricultural Associations Business Information Centre	AG
WGL	Wienco Ghana Limited	AG
FAGE	Federation of Association of Ghanaian Exporters	AG
FoodSPAN	Food Security Policy Advocacy Network	CSO
GNAFF	Ghana National Association of Farmers and Fishermen	PROD
GNAPF	Ghana National Association of Poultry Farmers	PROD
PFAG	Peasant Farmers Association of Ghana	PROD
APFOG	Apex Farmers Organization of Ghana	PROD
EPAG	Environmental Protection Association of Ghana	CSO
AGI	The Association of Ghana Industries	NA
PEF	The Private Enterprise Foundation	NA
GEA	Ghana Employers' Association	NA
GAWU	General Agricultural Workers' Union	CSO
ADRA	The Adventist Development and Relief Agency	iNGO
CRS	Catholic Relief Services	iNGO

Table A.4.: Degree Centrality: Actors (Ghana)

		T.4 Degree					Gnan			
Acronym	Orgtype	Reputation		Commui				Supp		
		IC'_D	IC'_D	OC'_D	C'_C	C_B'	IC'_D	OC'_D	C'_C	C_B'
MOFA	EXEC	1.00	0.82	0.84	0.02	0.64	0.60	0.56	0.75	0.50
MLNR	EXEC	0.52	0.27	0.24	0.01	0.02	0.16	0.13	0.53	0.00
MEST	EXEC	0.52	0.31	0.33	0.01	0.03	0.42	0.38	0.66	0.08
MOTI	EXEC	0.72	0.22	0.24	0.01	0.03	0.29	0.27	0.60	0.04
MOFEP	EXEC	0.72	0.38	0.29	0.01	0.09	0.31	0.29	0.61	0.09
EPA	PUB	0.60	0.18	0.27	0.01	0.06	0.33	0.36	0.65	0.08
COCOBOD	PUB	0.76	0.16	0.13	0.01	0.01	0.02	0.09	0.48	0.00
GIDA	PUB	0.80	0.24	0.22	0.01	0.02	0.33	0.29	0.60	0.04
NDPC	EXEC	0.80	0.20	0.36	0.01	0.03	0.40	0.4	0.66	0.09
LCG	PUB	0.56	0.27	0.18	0.01	0.01	0.18	0.16	0.53	0.01
FiCG	PUB	0.72	0.20	0.18	0.01	0.01	0.16	0.13	0.51	0.00
NDC	LEG	0.48	0.40	0.20	0.01	0.03	0.20	0.04	0.43	0.00
NPP	LEG	0.52	0.40	0.20	0.01	0.03	0.07	0.09	0.46	0.00
GiZ (GTZ)	DON	0.76	0.27	0.20	0.01	0.02	0.33	0.38	0.66	0.07
CIDÀ	DON	0.84	0.38	0.31	0.01	0.04	0.31	0.31	0.62	0.03
AFD	DON	0.60	0.22	0.13	0.01	0.01	0.24	0.29	0.61	0.02
USAID	DON	0.96	0.31	0.29	0.01	0.03	0.42	0.49	0.72	0.08
WB	DON	0.88	0.42	0.38	0.01	0.07	0.40	0.44	0.69	0.08
FAO	DON	0.68	0.33	0.31	0.01	0.03	0.31	0.49	0.71	0.07
IFAD	DON	0.84	0.13	0.29	0.01	0.02	0.31	0.36	0.64	0.03
AGRA	iNGO	0.76	0.13	0.13	0.01	0.00	0.27	0.02	0.42	0.00
ACDI/VOCA	iNGO	0.44	0.13	0.13	0.01	0.00	0.20	0.24	0.58	0.01
TS	iNGO	0.56	0.38	0.31	0.01	0.07	0.24	0.18	0.55	0.02
CRIG	RES	0.68	0.18	0.27	0.01	0.05	0.16	0.24	0.57	0.02
ISSER	RES	0.76	0.20	0.44	0.01	0.05	0.44	0.51	0.73	0.22
STEPRI	RES	0.40	0.16	0.24	0.01	0.01	0.18	0.16	0.54	0.01
UG	RES	0	0.07	0.02	0.01	0.01	0.09	0.09	0.47	0.00
FARA	RES	0.56	0.11	0.02	0.01	0.01	0.09	0.03	0.51	0.01
IWMI	RES	0.60	0.20	0.35	0.01	0.01	0.13	0.22	0.51	0.01
IFPRI	RES	0.76	0.26	0.42	0.01	0.01	0.19	0.22	0.45	0.01
GAIDA	AG	0.72	0.30	0.42 0.11	0.01	0.12	0.23	0.04	$0.45 \\ 0.51$	0.01
GAABIC	AG	0.72	0.13	0.11	0.01	0.00	0.11	0.10	0.42	0.02
WGL	AG	0.24 0.72	0.07 0.27	0.07 0.22	0.01	0.00	0.04 0.20	0.02 0.29	0.42 0.61	0.03
FAGE	AG AG	0.72	0.27	0.22	0.01	0.03	0.20	0.29	0.01	0.03
FAGE FoodSPAN	CSO	0.48	0.16	0.18 0.07	0.01	0.03	0.13	0.18	0.55	0.01
GNAFF	PROD	0.48 0.72	$0.16 \\ 0.24$	0.07 0.16	0.01	0.02	0.13 0.02	0.18 0.02	0.33 0.42	0.01
GNAPF	PROD		0.24 0.09	0.10	0.01	0.02	0.02	0.02 0.16	$0.42 \\ 0.56$	0
		0.76								
PFAG	PROD	0.52	0.22	0.18	0.01	0.02	0.16	0.16	0.54	0.02
APFOG	PROD	0.48	0.13	0.13	0.01	0.01	0.09	0.02	0.42	0.00
EPAG	CSO	0.48	0.02	0.04	0.01	0.00	0.09	0.29	0.61	0.01
AGI	NA	0.44	0.18	0.31	0.01	0.03	0.18	0.2	0.56	0.05
PEF	NA	0.64	0.16	0.18	0.01	0.01	0.22	0.07	0.46	0.01
GEA	NA	0.28	0.11	0.11	0.01	0.00	0.02	0.16	0.52	0.00
GAWU	CSO	0.64	0.31	0.24	0.01	0.06	0.24	0.07	0.46	0.01
ADRA	iNGO	0.52	0.09	0.09	0.01	0.00	0.24	0.29	0.61	0.07
CRS	iNGO	0.64	0.02	0	0	0	0.22	0.04	0.43	0.00

Table A.5.: Block- and Clustermembership (Ghana)

ID	Acronym	Orgtype	Expert	Support	Cluster
10103	MOFA	EXEC	1	1	1
10104	MLNR	EXEC	2	2	1
10105	MEST	EXEC	2	3	1
10108	MOTI	EXEC	3	1	2
10109	MOFEP	EXEC	2	1	2
10122	EPA	PUBAG	2	4	3
10123	COCOBOD	PUBAG	3	5	1
10124	GIDA	PUBAG	4	1	1
10131	NDPC	EXEC	2	1	2
10132	LCG	PUBAG	2	2	1
10134	FiCG	PUBAG	3	2	1
10202	NDC	LEG	5	5	1
10203	NPP	LEG	5	5	1
10401	GiZ (GTZ)	DONOR	4	1	1
10402	CIDA	DONOR	4	3	1
10404	AFD	DONOR	4	4	1
10405	USAID	DONOR	4	3	1
10407	WB	DONOR	4	3	1
10408	FAO	DONOR	4	3	1
10410	IFAD	DONOR	3	3	1
10505	AGRA	iNGO	3	5	1
10506	ACDI/VOCA	iNGO	3	4	1
10509	TS	iNGO	5	4	1
10601	CRIG	RESEARCH	3	2	1
10604	ISSER	RESEARCH	3	6	1
10607	STEPRI	RESEARCH	5	5	1
10610	UG	RESEARCH	3	5	4
10611	FARA	RESEARCH	5	5	4
10612	IWMI	RESEARCH	4	4	1
10613	IFPRI	RESEARCH	5	5	1
10702	GAIDA	IG:AGIND	3	5	5
10703	GAABIC	IG:AGIND	3	5	5
10710	WGL	IG:AGIND	3	2	1
10712	FAGE	IG:AGIND	3	5	2
10802	FoodSPAN	CSO	3	5	1
10804	GNAFF	IG:PROD	3	5	1
10805	GNAPF	IG:PROD	3	5	1
10807	PFAG	IG:PROD	5	5	1
10809	APFOG	IG:PROD	3	5	5
10901	EPAG	CSO	3	2	3
11001	AGI	IG:NONAGRAR	2	5	2
11003	PEF	IG:NONAGRAR	2	5	2
11005	GEA	IG:NONAGRAR	3	5	2
11102	GAWU	CSO	6	5	1
11102 11204	ADRA	iNGO	3	4	1
11204	CRS	iNGO	3	5	6
11400	OID	11100	9	9	J

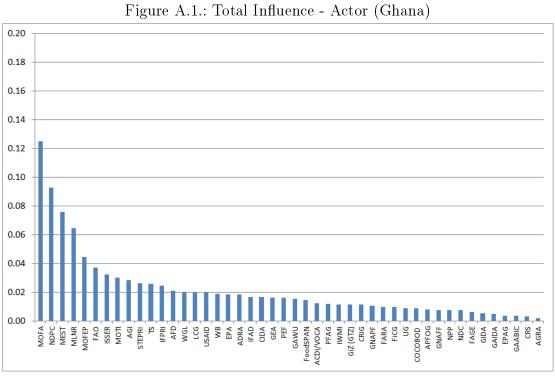


		Table	abie A.o.: Keiat	Ive Interest	III Folicy issu) ISSUE	s (Ghan	ä)		
Acronym	Farm	Agriexport	Agroprocess	Foodsecurity	Gender	NA	Services	Budget	Poverty	Environment
CSO	0.109	0.052	0.081	0.181	0.108	0.067	0.073	0.113		0.093
DONOR	0.215	0.060	0.095	0.163	0.074	0.033	0.057	0.043	0.183	0.078
EXEC	0.102	0.081	0.084	0.134	0.088	0.073	0.084	0.105		0.115
IG:AGIND	0.178	0.045	0.153	0.120	0.070	0.000	0.141	0.045		0.128
IG:NONAGRAR	0.083	0.113	0.195	0.023	0.078	0.262	0.080	0.075		0.033
IG:PROD	0.164	0.060	0.089	0.129	0.104	0.046	0.099	0.090		0.085
iNGO	0.164	0.060	0.089	0.129	0.104	0.046	0.099	0.090		0.085
LEG	0.118	0.048	0.073	0.325	0.059	0.034	0.059	0.073		0.073
PUBAG	0.281	0.058	0.070	0.124	0.058	0.033	0.058	0.096		0.132
RESEARCH	0.268	0.129	0.050	0.131	0.056	0.045	0.039	0.067		0.109
mean (all)	0.202	0.072	0.090	0.137	0.076	0.052	0.074	0.074	0.128	0.094

A.2. Senegal

Table A.7.: Most influential Actors (Senegal)

		,	
DI	Org	Group	IC
10109	MEF	EXEC	0.93
10103	MAER	EXEC	0.91
10311	CEDEAO	SUPRA	0.91
10507	ISRA	RESEARCH	0.91
10313	UEMOA	SUPRA	0.89
10413	UE	DONOR	0.89
10129	SAED	PUBAG	0.86
10704	CNCR	IG:PROD	0.86
10101	Pres	EXEC	0.84
10404	BAD	DONOR	0.84

Table A.8.: Indegree centrality: Reputation (Senegal)

Group	IC	Number
EXEC	0.77	7
PUBAG	0.70	5
LEG	0.43	1
SUPRA	0.90	2
DONOR	0.81	7
iNGO	0.59	2
RESEARCH	0.67	10
IG:AGIND	0.67	6
IG:PROD	0.68	2
CSO	0.60	4

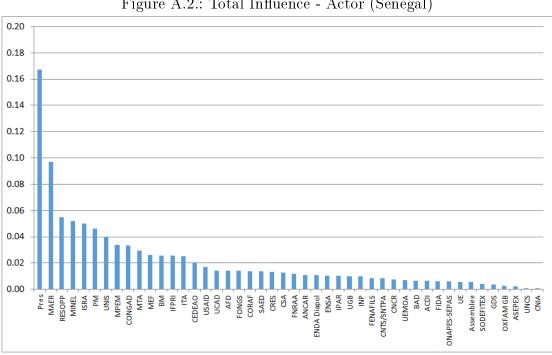


Figure A.2.: Total Influence - Actor (Senegal)

Table A.9.: Overview: Actors (Senegal)

Acronym	Orgname	Orgtype
Pres	Président de la Republique	EXEC
PM	Premier Ministre	EXEC
MAER	Ministère de l'agriculture et de l'equipement rural	EXEC
MINEL	Ministère de l'élevage	EXEC
MPEM	Ministère de la pêche et des affaires maritimes	EXEC
MEF	Ministère de l'economie et des finances	EXEC
MTA	Ministère du commerce, de l'industrie et du secteur informel	EXEC
ANCAR	Agence nationale de conseil agricole et rural	PUB
ASEPEX	Agence sénégalaise de promotion des exportations	PUB
CSA	Commissariat à la sécurité alimentaire	PUB
FNRAA	Fonds national de recherches agricoles et agroalimentaires	PUB
SAED	Société d'aménagement et d'exploitation des terres du delta,	PUB
	de la moyenne vallée et de la falémé	
Assemblee Nationale	Commission du développement et de l'aménagement du territoire	LEG
CEDEAO	Communauté économique des états de l'afrique de l'ouest	SUPR
UEMOA	Union économique et monétaire ouest africaine	SUPR
ACDI	Agence canadienne pour le developpement international	DON
AFD	Agence Franşaise de developpement	DON
BAD	Banque africaine de developpement	DON
BM	Banque Mondiale	DON
FIDA	Fonds international pour le developpement agricole	DON
UE	Union européenne	DON
USAID	United States agency for international development	DON
ENDA Diapol	Enda tiers monde	iNGO
OXFAM GB	Oxfam	iNGO
CRES	Consortium pour la recherche économique et sociale	RES
ENSA	Ecole nationale supérieure d'agronomie	RES
IPAR	Initiative prospective agriculture rurale	RES
ITA	Institut de technologie alimentaire	RES
INP	Institut national de pédologie	RES
ISRA	Institut Sénégalais de Recherches Agricoles	RES
UCAD	Université Cheikh Anta Diop de Dakar	RES
UGB	Université Gaston Berger	RES
CORAF	Conseil ouest et centre africain pour la recherche	RES
0 0 20	et le développement agricoles	
IFPRI	International food policy research institute	RES
CNIA	Comité national interprofessionnel pour l'arachide	AG
FENAFILS	Fédération nationale des acteurs de la filère lait	AG
ONAPES-SEPAS	Organisation nationale des producteurs exportateurs	AG
01/111 20 021110	de fruits et légumes du Sénégal	110
UNIS	Union nationale interprofessionnelle des semences	\overline{AG}
GDS	Grands domaines du Sénégal	AG
SODEFITEX	Société de développement et des fibres textiles	AG
CNCR	Conseil national de concertation et de coopération des ruraux	PROD
RESOPP	Réseau des organisations paysannes et pastorales du Sénégal	PROD
CONGAD	Conseil des organisations non gouvernementales	CSO
OUNGILD	d'appui au développement	050
FONGS	Fédération des organisations non gouvernementales du Sénégal	CSO
UNCS	Union nationale des consommateurs du Sénégal	CSO
CNTS/SNTPA	Confédération nationale des travailleurs du Sénégal	CSO
ONIDANILIA	Confederation nationale des travalitents du Denegal	000

Table A.10.: Degree Centrality: Actors (Senegal)

Acronym	Orgtype	Reputation		Commui	nicatio			Supp	ort	
		IC_D'	IC'_D	OC'_D	C'_C	C_B'	IC'_D	OC'_D	C'_C	C_B'
Pres	EXEC	0.84	0.36	0.31	0.01	0.06	0.24	0.18	0.54	0.06
PM	EXEC	0.68	0.29	0.11	0.01	0.01	0.27	0.36	0.65	0.12
MAER	EXEC	0.91	0.58	0.56	0.02	0.23	0.07	0.4	0.67	0.04
MINEL	EXEC	0.70	0.51	0.38	0.01	0.07	0.36	0.33	0.63	0.12
MPEM	EXEC	0.68	0.18	0.11	0.01	0.00	0.02	0.02	0.39	0
MEF	EXEC	0.93	0.36	0.38	0.01	0.04	0.04	0.04	0.41	0.00
MTA	EXEC	0.68	0.31	0.18	0.01	0.02	0.2	0.13	0.51	0.03
ANCAR	PUB	0.77	0.51	0.31	0.01	0.04	0.16	0.2	0.57	0.05
ASEPEX	PUB	0.64	0.09	0.09	0.01	0.00	0.09	0.11	0.50	0.01
CSA	PUB	0.55	0.04	0.27	0.01	0.00	0.09	0.07	0.46	0.00
FNRAA	PUB	0.70	0.33	0.31	0.01	0.03	0.18	0.33	0.63	0.04
SAED	PUB	0.86	0.40	0.33	0.01	0.06	0.09	0.09	0.45	0.01
Assemblee Nationale	LEG	0.43	0.36	0.07	0.01	0.00	0.09	0.16	0.53	0.00
CEDEAO	SUPR	0.91	0.29	0.33	0.01	0.03	0.27	0.2	0.54	0.10
UEMOA	SUPR	0.89	0.24	0.07	0.01	0.00	0.13	0.09	0.46	0.01
ACDI	DON	0.68	0.09	0.07	0.01	0.00	0.13	0.13	0.52	0.01
AFD	DON	0.75	0.38	0.53	0.02	0.09	0.07	0.11	0.47	0.05
BAD	DON	0.84	0.18	0.09	0.01	0.00	0.16	0.09	0.47	0.01
BM	DON	0.84	0.29	0.29	0.01	0.02	0.18	0.27	0.60	0.05
FIDA	DON	0.80	0.18	0.11	0.01	0.00	0.36	0.16	0.54	0.05
UE	DON	0.89	0.18	0.16	0.01	0.00	0.27	0.16	0.50	0.04
USAID	DON	0.84	0.49	0.44	0.01	0.06	0.49	0.51	0.73	0.37
ENDA Diapol	iNGO	0.70	0.13	0.16	0.01	0.00	0.09	0.13	0.51	0.01
OXFAM GB	iNGO	0.48	0.13	0.11	0.01	0.00	0.13	0.07	0.41	0.01
CRES	RES	0.55	0.13	0.40	0.01	0.01	0	0.04	0.42	0
ENSA	RES	0.66	0.22	0.33	0.01	0.01	0.11	0.22	0.57	0.01
IPAR	RES	0.57	0.27	0.44	0.01	0.04	0.24	0.13	0.49	0.06
ITA	RES	0.82	0.56	0.53	0.02	0.12	0.27	0.33	0.63	0.09
INP	RES	0.57	0.20	0.22	0.01	0.00	0.04	0.07	0.44	0.00
ISRA	RES	0.91	0.67	0.78	0.02	0.25	0.56	0.4	0.67	0.43
UCAD	RES	0.59	0.20	0.53	0.02	0.03	0.13	0.04	0.44	0.01
UGB	RES	0.64	0.33	0.51	0.01	0.04	0.16	0.02	0.35	0.00
CORAF	RES	0.70	0.24	0.51	0.01	0.04	0.02	0.07	0.40	0
IFPRI	RES	0.68	0.20	0.56	0.02	0.02	0.11	0.13	0.51	0.03
CNIA	AG	0.75	0.29	0.04	0.01	0.01	0.13	0.07	0.42	0.01
FENAFILS	AG	0.59	0.18	0.13	0.01	0.00	0.07	0.13	0.52	0.01
ONAPES-SEPAS	AG	0.73	0.33	0.22	0.01	0.02	0.13	0.16	0.53	0.03
UNIS	AG	0.70	0.13	0.16	0.01	0.00	0.13	0.24	0.59	0.05
GDS	AG	0.41	0.27	0.16	0.01	0.01	0.02	0.02	0.32	0.00
SODEFITEX	AG	0.84	0.31	0.24	0.01	0.02	0.16	0	0	0
CNCR	PROD	0.86	0.20	0.18	0.01	0.02	0.16	0.16	0.50	0.03
RESOPP	PROD	0.50	0.07	0.07	0.01	0	0.07	0.07	0.47	0.01
CONGAD	CSO	0.75	0.44	0.40	0.01	0.13	0.24	0.31	0.63	0.10
FONGS	CSO	0.77	0.47	0.49	0.01	0.08	0.29	0.24	0.59	0.10
UNCS	CSO	0.32	0.04	0.02	0.01	0	0	0	0	0
CNTS/SNTPA	CSO	0.55	0.29	0.02	0.01	0.03	0.09	0.09	0.44	0.02

Table A.11.: Block- and Clustermembership (Ghana)

ID	Acronym	Orgtype	Expert	Support	Cluster
10101	Pres	EXEC	1	1	1
10102	PM	EXEC	1	1	1
10103	MAER	EXEC	2	2	2
10104	MINEL	EXEC	3	1	2
10107	MPEM	EXEC	1	3	3
10109	MEF	EXEC	3	3	1
10111	MTA	EXEC	1	3	2
10123	ANCAR	PUBAG	4	3	2
10126	ASEPEX	PUBAG	1	3	2
10127	CSA	PUBAG	1	3	4
10128	FNRAA	PUBAG	4	3	2
10129	SAED	PUBAG	4	3	2
10212	Assemblee Nationale	$_{ m LEG}$	4	1	3
10311	CEDEAO	SUPRA	3	1	1
10313	UEMOA	SUPRA	1	1	1
10401	ACDI	DONOR	1	3	4
10403	AFD	DONOR	3	3	1
10404	BAD	DONOR	1	3	1
10406	BM	DONOR	1	3	2
10412	FIDA	DONOR	1	1	1
10413	UE	DONOR	1	1	2
10414	USAID	DONOR	3	4	2
10423	ENDA Diapol	iNGO	1	5	1
10424	OXFAM GB	iNGO	1	5	1
10502	CRES	RESEARCH	4	3	1
10503	ENSA	RESEARCH	4	3	3
10504	IPAR	RESEARCH	5	5	1
10505	ITA	RESEARCH	6	2	2
10506	INP	RESEARCH	4	3	3
10507	ISRA	RESEARCH	6	6	2
10508	UCAD	RESEARCH	4	3	3
10509	UGB CORAF	RESEARCH	4 5	3 3	3
10512		RESEARCH	5 4	3	$\frac{1}{2}$
10515	IFPRI	RESEARCH		3	$\frac{2}{3}$
10604	CNIA FENAFILS	IG:AGIND IG:AGIND	1 1	3	3
$10605 \\ 10608$	ONAPES-SEPAS	IG:AGIND IG:AGIND	4	3	3
10610	UNIS		1	2	
10610 10622	GDS	IG:AGIND IG:AGIND	4	$\frac{2}{3}$	4 3
10624	SODEFITEX	IG:AGIND IG:AGIND	1	3	2
10024 10704	CNCR	IG:AGIND IG:PROD	1	5 5	$\frac{2}{3}$
10704 10709	RESOPP	IG:PROD IG:PROD	1	о 3	5 5
10709	CONGAD	CSO	5	5 5	2
10902 10903	FONGS	CSO	5	3	$\frac{2}{2}$
10903 10913	UNCS	CSO	1	3	6
10913 10921	CNTS/SNTPA	CSO	4	3	3
10341	ON ID/DIVITA	000	4	ย	J

		Labie	labie A.1Z.: Keia	Relative interest i		cy Issu	n Policy Issues (Senegal)	ega1)		
Acronym	Farm	Agriexport	Agroprocess	Foodsecurity	Gender	NA	Services	Budget	Poverty	Environment
EXEC	0.063	0.038	0.030	0.021	0.040	0.078	0.045	0.221	0.293	0.171
PUBAG	0.054	0.046	0.030	0.009		0.106	0.100	0.240	0.270	0.110
LEG	0.018	0.009	0.009	0.006		0.060	0.080	0.500	0.150	0.150
SUPRA	0.023	0.014	0.008	0.014		0.039	0.031	0.450	0.200	0.190
DONOR	0.052	0.010	0.020	0.016		0.057	0.044	0.157	0.419	0.190
iNGO	0.039	0.013	0.016	0.010		0.059	0.042	0.200	0.400	0.200
RESEARCH	0.053	0.018	0.015	0.012		0.058	0.050	0.229	0.345	0.188
IG:AGIND	0.068	0.025	0.030	0.015		0.082	0.053	0.217	0.328	0.152
IG:PROD	0.061	0.009	0.009	0.010		0.023	0.018	0.125	0.550	0.175
CSO	0.042	0.020	0.026	0.021	0.043	0.081	0.055	0.300	0.225	0.188
mean (all)	0.053	0.023	0.022	0.015	0.033	0.069	0.053	0.232	0.328	0.172

A.3. Uganda

Table A.13.: Most influential Actors (Uganda)

ID	Org	Group	IC
10104	MAAIF	EXEC	0.97
10125	NARO	PUBAG	0.93
10106	MFPED	EXEC	0.9
10811	UNFFE	IG:PROD	0.9
10406	FAO	DONOR	0.87
10407	IFAD	DONOR	0.87
10411	WB	DONOR	0.87
10605	EPRC	RESEARCH	0.87
11002	PSFU	IG:NONAGRAR	0.83
10134	UCDA	PUBAG	0.8

Table A.14.: Indegree centrality: Reputation (Uganda)

Group	IC	Number
EXEC	0.70	7
PUBAG	0.74	6
LEG	0.46	2
DONOR	0.82	6
iNGO	0.39	3
RESEARCH	0.62	5
IG:AGIND	0.55	8
IG:PROD	0.79	3
IG:NONAGRAR	0.75	2
CSO	0.43	1

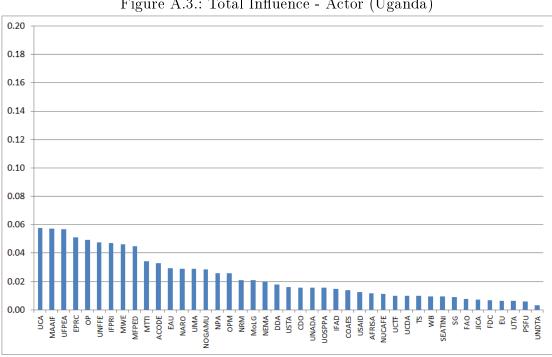


Figure A.3.: Total Influence - Actor (Uganda)

Table A.15.: Overview: Actors (Uganda)

Acronym	Orgname	Orgtype
MAAIF	Ministry of Agriculture Animal Industry and Fisheries	EXEC
MFPED	Ministry of Finance Planning and Economic Development	EXEC
MoLG	Ministry of Local Government	EXEC
MTTI	Ministry of Trade and Tourism Industry	EXEC
MWE	Ministry of Water and Environment	EXEC
CDO	Cotton Development Organisation	PUB
DDA	Dairy Development Authority	PUB
NARO	National Agricultural Research Organisation / System	PUB
NEMA	National Environment Management Authority	PUB
NPA	National Planning Authority	PUB
OP	Office of the President	EXEC
OPM	Office of the Prime Minister	EXEC
UCDA	Uganda Coffee Development Authority	PUB
FDC	Forum for Democratic Change	LEG
NRM	National Resistance Movement	LEG
EU	European Union	DON
FAO	Food and Agricultural Organization	DON
IFAD	International Fund for Agriculture	DON
$_{ m JICA}$	Japanese International Cooperation Agency	DON
USAID	United States Agency for International Development	DON
WB	World Bank	DON
SG	Sasakawa Global 2000	iNGO
SEATINI	Strengthening Africa in World Trade	iNGO
TS	Techno Serve	iNGO
ACODE	Advocates Coalition for Development and Environment	RES
AFRISA	African Institute for Strategic Animal Resources Development	RES
COAES	College of Agriculture and Environmental Sciences, Makerere University	RES
EPRC	Economic Policy Research Center	RES
IFPRI	International Food Policy Research Institute	RES
NUCAFE	National Union of Coffee Agribusinesses and Farm Enterprises	\overline{AG}
UCTF	Uganda Coffee Trade Federation	\overline{AG}
UFPEA	Uganda Fish processors and Exporters Association	\overline{AG}
UNADA	Uganda National Agro-Input Dealers Association	\overline{AG}
UNDTA	Uganda National Dairy Traders Association	\overline{AG}
UOSPPA	Uganda Oil Seed Producers and Processors Association	\overline{AG}
USTA	Uganda Seed Traders' Association	\overline{AG}
UTA	Uganda Tea Association	AG
NOGAMU	National Organic Agricultural Movement of Uganda	PROD
UCA	Uganda Cooperative Alliance	PROD
UNFFE	Uganda National Farmers' Federation	PROD
EAU	Environmental Alert Uganda	CSO
PSFU	Private Sector Foundation Uganda	NA
UMA	Uganda Manufacturers Association	NA

Table A.16.: Degree Centrality: Actors (Uganda)

		4.10 Degr			-		(Oga.			
Acronym	Orgtype	Reputation		Commui			T (7)	Supp		CI .
	D.T.D.G	IC'_D	IC'_D	OC'_D	C_C'	C_B'		OC'_D	C_C'	C_B'
MAAIF	EXEC	0.97	0.45	0.40	0.01	0.13	0.24	0.48	0.74	0.16
MFPED	EXEC	0.90	0.60	0.69	0.02	0.38	0.86	0.52	0.75	0.51
MoLG	EXEC	0.50	0.19	0.12	0.01	0.01	0.19	0.19	0.58	0.03
MTTI	EXEC	0.63	0.29	0.29	0.01	0.03	0.07	0.05	0.44	0.00
MWE	EXEC	0.77	0.21	0.45	0.02	0.05	0.10	0.31	0.63	0.03
CDO	PUB	0.77	0.07	0.10	0.01	0.00	0.07	0.10	0.51	0.00
DDA	PUB	0.77	0.26	0.19	0.01	0.04	0.10	0.12	0.52	0.05
NARO	PUB	0.93	0.62	0.62	0.02	0.26	0.48	0.43	0.70	0.16
NEMA	PUB	0.43	0.17	0.21	0.01	0.01	0.17	0.12	0.54	0.01
NPA	PUB	0.77	0.33	0.17	0.01	0.02	0.02	0.31	0.65	0.00
OP	EXEC	0.50	0.19	0.10	0.01	0.01	0.05	0.02	0.39	0.00
OPM	EXEC	0.60	0.36	0.21	0.01	0.03	0.33	0.02	0.43	0.00
UCDA	PUB	0.80	0.21	0.17	0.01	0.01	0.29	0.31	0.64	0.04
FDC	$_{ m LEG}$	0.43	0.17	0.07	0.01	0.01	0.05	0.14	0.56	0.00
NRM	LEG	0.50	0.57	0.36	0.01	0.11	0.07	0.10	0.51	0.00
EU	DON	0.80	0.48	0.33	0.01	0.05	0.55	0.31	0.65	0.07
FAO	DON	0.87	0.10	0.05	0.01	0.00	0.24	0.26	0.62	0.03
IFAD	DON	0.87	0.29	0.24	0.01	0.03	0.19	0.07	0.47	0.01
JICA	DON	0.77	0.26	0.21	0.01	0.02	0.12	0.05	0.45	0.00
USAID	DON	0.73	0.38	0.19	0.01	0.06	0.29	0.33	0.65	0.05
WB	DON	0.87	0.29	0.26	0.01	0.01	0.19	0.02	0.43	0.00
SG	iNGO	0.57	0.14	0.07	0.01	0.00	0.26	0.26	0.62	0.08
SEATINI	iNGO	0.27	0.17	0.10	0.01	0.00	0.17	0.17	0.56	0.01
TS	iNGO	0.33	0.19	0.17	0.01	0.01	0.17	0.19	0.58	0.06
ACODE	RES	0.53	0.02	0.26	0.01	0.00	0.24	0.31	0.65	0.03
AFRISA	RES	0.37	0.12	0.07	0.01	0.00	0.14	0.05	0.45	0.00
COAES	RES	0.60	0.10	0.29	0.01	0.01	0.10	0.07	0.44	0.00
EPRC	RES	0.87	0.05	0.71	0.02	0.02	0.12	0.02	0.43	0.00
IFPRI	RES	0.73	0.05	0.52	0.02	0.02	0.40	0.33	0.66	0.08
NUCAFE	AG	0.60	0.14	0.12	0.01	0.00	0.24	0.26	0.61	0.02
UCTF	AG	0.63	0.21	0.26	0.01	0.02	0.17	0.24	0.61	0.01
UFPEA	AG	0.63	0.26	0.17	0.01	0.01	0.31	0.33	0.66	0.06
UNADA	AG	0.57	0.21	0.24	0.01	0.01	0.21	0.29	0.63	0.01
UNDTA	AG	0.37	0.05	0.05	0.01	0.00	0.02	0.02	0.35	0.00
UOSPPA	AG	0.57	0.26	0.00	0.01	0.01	0.02	0.31	0.65	0.00
USTA	AG	0.50	0.14	0.12	0.01	0.00	0.19	0.26	0.62	0.02
UTA	AG	0.50	0.11	0.07	0.01	0.00	0.13	0.12	0.54	0.00
NOGAMU	PROD	0.73	0.31	0.29	0.01	0.05	0.33	0.48	0.73	0.08
UCA	PROD	0.73	0.36	0.23	0.01	0.03	0.31	0.40	0.70	0.08
UNFFE	PROD	0.90	0.50	0.51	0.01	0.03	0.48	0.48	0.73	0.00
EAU	CSO	0.30 0.43	0.30	0.32 0.29	0.02	0.13	0.40	0.40	0.48	0.00
PSFU	NA	0.43	0.29 0.40	0.29 0.48	0.01	0.03	0.50	0.50	0.45	0.00
UMA	NA NA	$0.65 \\ 0.67$	0.40	0.48	0.02 0.01	$0.11 \\ 0.04$	0.30	0.30	$0.75 \\ 0.65$	$0.14 \\ 0.04$
	1117	0.01	0.50	0.20	0.01	0.04	0.40	0.01	0.00	0.04

Table A.17.: Block- and Clustermembership (Uganda)

10104 MAAIF EXEC 1	ID	Acronym	Orgtype	Expert	Support	Cluster
10106 MFPED EXEC 2 2 1 10108 MoLG EXEC 3 3 2 10110 MTTI EXEC 3 3 1 10111 MWE EXEC 1 3 2 10121 DOO PUBAG 3 3 2 10122 CDO PUBAG 3 3 1 10123 DDA PUBAG 3 3 1 10123 DDA PUBAG 2 2 1 10126 NEMA PUBAG 1 3 3 1 10126 NEMA PUBAG 4 3 1 1 1 1 3 3 1 1 1 1 3 3 1 1 1 1 1 1 3 1 1 1 1 1 1 3 1 1 1 1 1 3 1<						
10108 MoLG EXEC 3 3 1 10110 MTTI EXEC 3 3 1 10111 MWE EXEC 1 3 2 10121 MWE EXEC 1 3 2 10123 DDA PUBAG 3 3 1 10125 NARO PUBAG 2 2 1 10126 NEMA PUBAG 1 3 3 10128 NPA PUBAG 4 3 1 10129 OP EXEC 3 3 1 10129 OP EXEC 3 3 1 10134 UCDA PUBAG 3 3 2 10203 FDC LEG 3 3 2 10205 NRM LEG 1 3 1 10406 FAO DONOR 4 4 1 10406 FAO </td <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td>				_		
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10111 MWE EXEC 1 3 2 10122 CDO PUBAG 3 3 2 10123 DDA PUBAG 3 3 1 10125 NARO PUBAG 2 2 1 10126 NEMA PUBAG 1 3 3 10128 NPA PUBAG 4 3 1 10129 OP EXEC 3 3 1 10130 OPM EXEC 1 3 1 10134 UCDA PUBAG 3 3 3 1 10134 UCDA PUBAG 3 3 3 1 10203 FDC LEG 3 3 2 10204 PUBAG 3 3 2 10205 NRM LEG 1 3 1 10406 FAO DONOR 4 4 1 10407 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
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10125 NARO PUBAG 2 2 1 10126 NEMA PUBAG 1 3 3 10128 NPA PUBAG 4 3 1 10129 OP EXEC 3 3 1 10130 OPM EXEC 1 3 1 10134 UCDA PUBAG 3 3 2 10203 FDC LEG 3 3 2 10205 NRM LEG 1 3 1 10405 EU DONOR 4 4 1 10406 FAO DONOR 4 3 1 10407 IFAD DONOR 4 3 1 10408 JICA DONOR 4 4 1 10410 USAID DONOR 4 3 1 10411 WB DONOR 4 3 1 10505						
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11002 PSFU IG:NONAGRAR 6 6 1						
			IG:NONAGRAR	6	6	1
	11004	UMA	IG:NONAGRAR	3	1	1

		Table A.18.:	ㅁ	ferative interest i	ш копсу) Issue	s (Ogame	la)		
Acronym	Farm	Agriexport	Agroprocess	Foodsecurity	Gender	NA	Services	Budget	Poverty	Environment
CSO	0.109	0.052	0.081	0.181	0.108	0.067	0.073	0.113	0.122	0.093
DONOR	0.215	0.060	0.095	0.163	0.074	0.033	0.057	0.043	0.183	0.078
EXEC	0.102	0.081	0.084	0.134	0.088	0.073	0.084	0.105	0.133	0.115
IG:AGIND	0.178	0.045	0.153	0.120	0.070	0.000	0.141	0.045	0.120	0.128
IG:NONAGRAR	0.083	0.113	0.195	0.023	0.078	0.262	0.080	0.075	0.057	0.033
IG:PROD	0.164	0.060	0.089	0.129	0.104	0.046	0.099	0.090	0.134	0.085
iNGO	0.164	0.060	0.089	0.129	0.104	0.046	0.099	0.090	0.134	0.085
LEG	0.118	0.048	0.073	0.325	0.059	0.034	0.059	0.073	0.140	0.073
PUBAG	0.281	0.058	0.070	0.124	0.058	0.033	0.058	0.096	0.089	0.132
RESEARCH	0.268	0.129	0.050	0.131	0.056	0.045	0.039	0.067	0.107	0.109
mean (all)	0.202	0.072	0.090	0.137	0.076	0.052	0.074	0.074	0.128	0.094

Table A.19.: Model Terms

	Gł	nana	Ser	negal	IJσ	anda
	Expert	Support	Expert	Support	Expert	Support
\overline{EDGES}						
network density a	0.2261	0.2145	0.2812	0.1585	0.2542	0.2259
POLSIM						
mean simil. e	0.4	1329	0.3	3482	0.6	3126
	(0.1	(161)	(0.1	1109)	(0.1	1422)
PREFSIM						
mean simil. e	0.2	2362	0.2	2496	0.2	2591
	(0.1	1152)	(0.1	1105)	(0.1	1409)
MEMBER						
$network density^a$	0.0)821	0.1	1623	0.0)587
mean member ^{e}		.93		.54	1	.05
	$(\theta$.68)	(2	.54)	(1	. 45)
MUTUAL						
$\mathrm{reciprocity}^b$	0.3868	0.3604	0.3591	0.3171	0.3399	0.3137
$GWESP \ \& \ GWDSP$						
${ m transitivity}^d$	0.4391	0.3847	0.5064	0.3799	0.4796	0.4576
EXPERT & SUPPORT						
mean degree c	20.35	19.30	25.30	14.26	21.35	18.98
_	(11.79)	(12.02)	(13.40)	(9.95)	(11.74)	(12.24)
POWER						
mean reputation e	0.3	391	0.6	5899	0.4	1668
	(0.1	(157)	(0.1	1444)	(0.1	1291)
EXEC						
mean i. degree^g	17.33	16.33	13	7.711	13.57	11
	(10.33)	(6.74)	(7.42)	(5.77)	(8.83)	(11.82)
DONOR						
mean o. degree^f	13.29	17.71	11.43	9.14	12.50	7.33
	(4.39)	(3.68)	(6.27)	(6.62)	(5.36)	(5.96)
RESEARCH						
$\mathrm{mean} \ \mathrm{o.degree}^f$	8.14	8.86	13.60	6.60	2.80	6.60
	(4.10)	(7.01)	(7.78)	(5.89)	(1.64)	(6.35)
IG IG b	0.07.00	0.0000	0.4-10	0.4-2.	0.0=0=	0.00
share IG:IG h	0.2532	0.2033	0.1748	0.1754	0.2707	0.3277

 \overline{Note} :

Note:

a share of directed ties among all possible $n^2 - n$ ties
b share of reciprocal ties
c mean degree (standard deviation)
d clustering coefficient, see Wasserman and Faust (1994)
e mean value (standard deviation)
f mean out degree (standard deviation)
g mean in degree (standard deviation)

h share of homosphilis ties among all IC ties

^h share of homophilic ties among all IG ties

A.4. Policy Belies and Networks - A Tale of Two or Many Worlds?

A.4.1. Network Structure

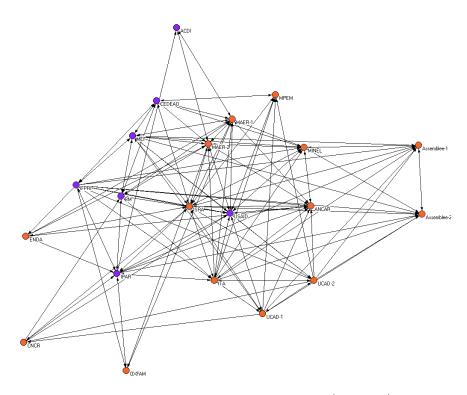


Figure A.4.: Communication Network (Senegal)

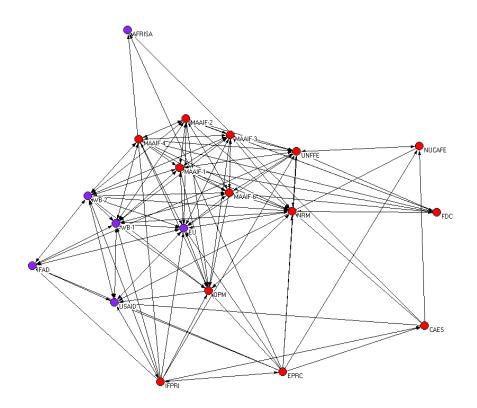


Figure A.5.: Communication Network (Uganda)

A.4.2. Structural Equivalence

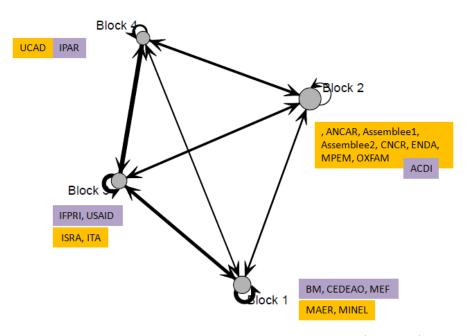


Figure A.6.: Reduced Graph: Communication (Senegal)

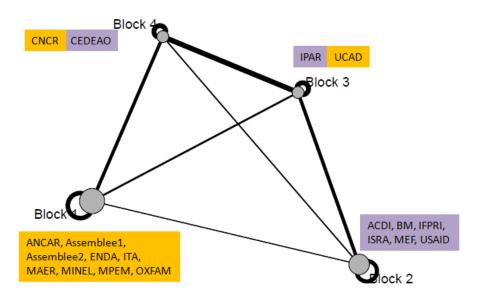


Figure A.7.: Reduced Graph: Belief (Senegal)

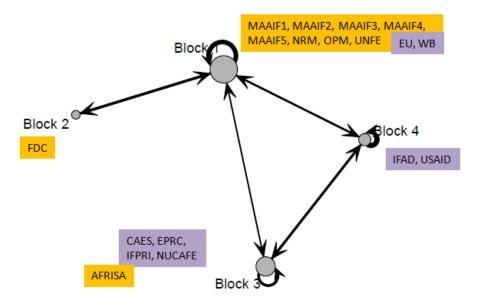


Figure A.8.: Reduced Graph: Communication (Uganda)

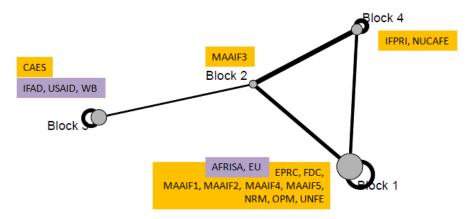


Figure A.9.: Reduced Graph: Belief (Uganda)

A.4.3. Political Influence Profiles

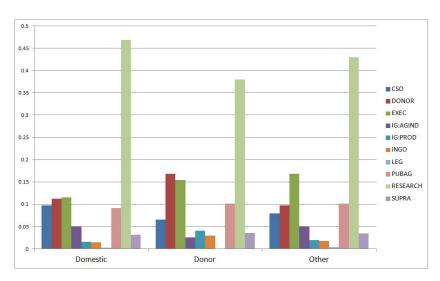


Figure A.10.: Influence Profile (Senegal)

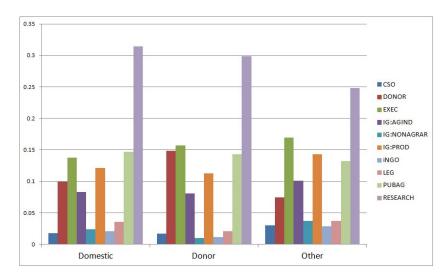


Figure A.11.: Influence Profile (Uganda)

LEBENSLAUF

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