



INTERNATIONAL FOOD POLICY
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**Mapping the Contemporary Fertilizer
Policy Landscape in Malawi**

A Guide for Policy Researchers

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ABSTRACT

A major rationale for conducting policy research is the contribution the results can make to policy improvement efforts. Over the years, funders of international policy research have placed increasing emphasis on making sure that the research they fund influences policymaking, challenging research organizations to document the impact of their research. To improve the integration of research into policy, stakeholders need to understand the policy process itself.

Against this background, IFPRI undertook this case study in order to identify the ways international research can influence policy decisions in the agricultural sector in Malawi. This case study uses the participatory Net-Map interview tool to examine the policy landscape related to the fertilizer component of the Farm Input Subsidy Program of the Government of Malawi. This paper provides a brief overview of the context of fertilizer policy in Malawi, reviews the general literature on the role of scientific knowledge in policy processes, and describes the methodology and results of analysis.

Results from both a literature review and analysis of the Net-Map results show that fertilizer policy formulation in Malawi has been largely influenced by embedded political belief systems, interests, and power relations that involve a number of key actors among donors and the government. Only marginal influence by other actors in the private sector, nongovernmental organizations, media, farmers, and academicians was observed. As described in the concluding section, the analysis has also provided insights on how best to design and structure initiatives aimed at enhancing the role that research can play in policy processes in Malawi's agricultural sector.

Keywords: policy process, policy landscape, social network analysis, fertilizer subsidies

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ABBREVIATIONS AND ACRONYMS

ADMARC	Agricultural Development and Marketing Corporation
AISAM	Agricultural Input Supplier's Association of Malawi
AISP	Agricultural Input Subsidy Program
CISANET	Civil Society Agriculture Network
CSSP	Country Strategy Support Program
DADO	District Agriculture Development Offices
DC	District Commissioner
DCAFS	Donor Community on Agriculture and Food Security
DFID	UK Department For International Development
EU	European Union
FAM	Fertilizer Association of Malawi
FAO	Food and Agriculture Organization of the United Nations
FISP	Farm Input Subsidy Program
FUM	Farmers' Union of Malawi
IMF	International Monetary Fund
Logistics Unit	Logistics Unit, MOAFS
MEJN	Malawi Economic Justice Network
MOAFS	Ministry of Agricultural and Food Security
MOF	Ministry of Finance
NASFAM	National Smallholder's Farmers Association of Malawi
Norway	The Royal Norwegian Embassy in Malawi
OPC/Cabinet	Office of the President and the Cabinet
Parliament	relevant parliamentary committees
PS_MOAFS	Principal Secretary of MOAFS
research	relevant individual researchers
SAKSS	Strategic Analysis and Knowledge Support System
SFFRFM	Smallholder Farmers Fertilizer Revolving Fund, Malawi
STAM	Seed Trade Association of Malawi
USAID	United States Agency for International Development
VDC	Village Development Committee
WB	The World Bank
WFP	United Nations World Food Programme

1. INTRODUCTION

A major rationale for conducting policy research is the contribution the results can make to policy improvement efforts. Over the years, funders of international policy research have placed increasing emphasis on making sure that the research they fund influences policymaking, challenging research organizations to document the impact of their research. For example, the Science Council of the Consultative Group on International Agricultural Research has made policy impact one of the performance criteria, and international researchers are under increasing pressure to ensure that their research influences policy processes.

The literature indicates that understanding one's own policy process is a country's first important step to understanding how research can play a role in bettering operations (Juma and Clark 1995; Philips and Seck 2004; Sebatier 2007). To improve the integration of research into policy, it is necessary to understand the policy process itself, including its information flows, and how research can play a role in it.

When observing policy processes, in addition to the formal procedures and command structures that are most obvious, one sees various informal interactions. Actors meet to exchange information and lobby for certain policy goals, and local and international initiatives contribute by adding funds or research outputs; all of these interactions contribute to shaping the content and process of policymaking. While the review of the literature provides a variety of theoretical models with which to examine the policy landscape, empirical fieldwork captures the context-specific and informal aspects of it.

Against this background, IFPRI undertook this case study on the ways international research can influence policy decisions in the agricultural sector in Malawi. While the emphasis is on Malawi, we hope the results will also provide insights for IFPRI's work throughout Africa. We used the participatory Net-Map tool, developed by Eva Schiffer (Schiffer & Hauck 2010), to construct a case study on the fertilizer component of the Farm Input Subsidy Program (FISP)¹ of the Government of Malawi. The FISP is a key component of an agricultural sector-wide approach to ensuring food security in the country. The bulk of the resources are spent on fertilizer procurement (approximately three-quarters of the total cost), and most of the analytical emphasis is placed on the voucher distribution system.

The fertilizer policy in Malawi was selected as a case study for two main reasons. First, IFPRI recently started a Country Strategy Support Program (CSSP) in Malawi to help strengthen the use of evidence in policymaking. Hence, the review of the agricultural policy landscape in Malawi will help to directly inform IFPRI researchers as they engage and disseminate research-based information in the country. Moreover, the baseline data collected by the Net-Map tool can also serve to help monitor future progress of the CSSP as it establishes stronger research-policy linkages in the Malawian agricultural sector. Second, the FISP policy is prominent in the agricultural policy landscape and sufficient knowledge has accrued about its evolution in Malawi over time.

In the rest of this paper, we first provide a brief overview of fertilizer policy in the Malawi context. In Section 2 we review the general literature on the role of scientific knowledge in policy processes. Then, in Section 3, we describe the methodology used to capture and analyze the policy landscape and the results of this analysis. Finally, in Section 4 we discuss the results and the implications for Malawi and for policy researchers more broadly.

Importance of Fertilizer Policies in Malawi

For more than one-half a century the agricultural policy landscape in Malawi has been affected by the dual goals of promoting export-led agricultural growth and achieving self-sufficiency in white maize production, the preferred food staple in Malawi and a primary source of income among millions of smallholder farmers. The importance of white maize is expressed by Malawian residents in the term

¹ The Farm Input Subsidy Program includes inputs of fertilizer as well as seed. However, because these two subfields have very different influential actors, we limited the analysis to the fertilizer component of the program.

Chimangandimoyo or “Maize is life” (Smale 1995). Although agricultural policies have shifted and adjusted over time in response to changing political, environmental, and socioeconomic factors (including domestic and external shocks), they have rarely strayed from maintaining these two essential goals. Among the key factors, increasing population pressure over time has undoubtedly brought to center stage policies targeted at improving maize productivity through the distribution of improved seeds and fertilizers. Today the country is one of the most densely populated in Africa, further exacerbating Malawi’s food security challenge (FAO/WFP 2005; Tshibaka 1992).

With less land available for production and more mouths to feed, the pressure to increase maize productivity through fertilizer subsidies has become synonymous with ensuring the political legitimacy of those in power. Traditional practices of maintaining soil fertility through the use of fallow systems were no longer viable as average farm holdings fell to less than a hectare. Yields also declined further under these conditions as smallholders allocated more and more marginal land for maize production (Blackie and Mann 2005). As a result, policy debates over fertilizer subsidies have been prevalent, focusing on the appropriate scope and scale of subsidy for economic efficiency, the government’s ability to fund and manage it efficiently, the possible displacement of the private sector, and the diminished diversification of local diets. To address our key question, we examine the key actors engaging in the dialogue on Malawian fertilizer policy and to the extent to which research and analysis have informed this discussion.

The evolving socioeconomic and political landscape in Malawian agriculture—specifically past fertilizer policies and the changing domestic and external political contexts—have been reviewed in detail in a separate background paper (see Johnson and Birner 2011). Therefore, we direct our attention on describing the current fertilizer subsidy.

Overview and Brief Description of the Current Fertilizer Subsidy Program

The current fertilizer subsidy program has been operating since the 2005/06 production season. Falling under the Agricultural Input Subsidy Program (and later the Farm Subsidy Input Program or FISP), the program is administered as a coupon system for targeted farm households. Typically, the program provides coupons for inorganic fertilizers as well as improved hybrid and open-pollinating maize seed varieties. Periodically, pesticides and other improved seeds such as beans, groundnut, pigeon pea, and cotton are also included. The targeted beneficiaries are smallholder farmers considered vulnerable. According to Chibwana et al. (2011), the identification of the vulnerable falls on the village head in collaboration with Village Development Committees (VDCs), with priority given to households headed by children and women. In addition, the beneficiary must own land and reside in the village. The Ministry of Agriculture distributes the coupons to districts where the VDCs facilitate delivery to all eligible beneficiaries.

The evolution of the subsidy program since its inception in 2005 is displayed in Table 1.1, which shows the number of beneficiaries reached; the amount of fertilizer procured, distributed, and delivered under the program; the price paid by farmers redeeming a coupon; and the total cost of the program. During the 2008/09 program over 1.7 million smallholder farmers qualified and received coupons under the program. Each beneficiary was allocated two fertilizer vouchers that entitled them to two 50-kg bags of maize fertilizer with a selling price of MWK (Malawian kwacha) 800. Because of the prevailing market price for fertilizer at the time and the actual price paid by voucher holders, this effectively translated into a face value of MWK 9,200 for each voucher. At the same time, seed vouchers with a face value of MWK 680 for maize (hybrid or open-pollinating varieties), cotton, and legume (bean, pigeon pea, and groundnut) were also made available to beneficiaries at no cost to them (Logistics Unit 2009).

Table 1.1—Evolution of the farm input subsidy program, 2005-12

Characteristic	Program Year by Production Seasons						
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12*
Total government tenders	n.a	150,000	170,000	170,000	76,988	160,000	140,000
Carryover stock	n.a	24,668	46,553	48,462	84,076	n.a	n.a-
Total supply of subsidized fertilizer	n.a	174,668	216,553	218,462	161,064	160,000	140,000
Total purchased by farmers	n.a	174,668	165,835	134,386	161,064	160,000	140,000
Total sold by private sector retailers	n.a	49,251	50,719	n.a	n.a	n.a	n.a
Total sold by parastatals	100%	125,417	126,035	134,386	161,064	160,000	140,000
Share handled by parastatals	n.a	72%	76%	100%	100%	n.a	n.a
Number of farmers/beneficiaries (millions)	800	n.a	n.a	1.7	1.5 to 1.7	1.5 to 1.7	1.4
Price paid by farmers (top up) (MWK)	n.a	800	900	800	500	n.a	n.a
Subsidy value	n.a	n.a	n.a	680	n.a	n.a	n.a
Total cost to government (US\$ millions)	n.a	n.a	n.a	n.a	n.a	n.a	117.0

Source: Various reports from the Ministry of Agriculture's Logistics Unit.

Note: *planned.

For the most part, two parastatals distributed and delivered the fertilizer: the Agricultural Development and Marketing Corporation (ADMARC) and the national Smallholder Farmers Fertilizer Revolving Fund, Malawi (SFFRFM). However, the procurement of fertilizer for the subsidy program has been typically handled by large private-sector retailers through a tender system. Nevertheless, over the years the processes have varied. In the first year of the program, for example, procurement was handled solely by the SFFRFM. By the second year, tenders were introduced to procure fertilizer from both public and private sector enterprises in the country, and in the second and third years only, private sector retailers were also allowed to redeem coupons at their own retail depots.

After serious concerns were raised about the negative consequences of excluding the private retail sector from the process (Bumb and Kamchacha 2007), seven private retailers were initially authorized to distribute fertilizer during the 2006-07 season. By the end of the first year, the seven private retailers accounted for about 28 percent of the total amount of subsidized fertilizer acquired by farmers (49,251 metric tons) (Logistics Unit 2007). The degree to which the private sector participated in the subsidy program did not change much in the following year: eight companies supplied 50,719 metric tons (Logistics Unit 2008). In subsequent years, private sector retailers were not authorized to accept vouchers in exchange for fertilizer, and all subsidized fertilizer was sold exclusively through ADMARC and SFFRFM. Private sector companies issued the tender procurement for delivery to regional SFFRFM depots where contracted local transporters took it to ADMARC and SFFRFM unit markets.

The farmer contribution, or *top up* payment, involves farmers making a small payment while redeeming a voucher for a single 50-kg bag of fertilizer. Changing little over the years, the required farmer contribution initially hovered around MWK 800, and briefly rose to MWK 900 in 2008/09, it dramatically decreased to MWK 500 during the 2009/10 year. On average, 1.5 to 1.7 million smallholder farmers were able to collect the fertilizer vouchers each year. According to weekly reports from the

Logistics Unit (2011), plans for the 2011/12 season include distributing 140,000 metric tons of fertilizer to 1.4 million households at a total cost of about US\$117. Typically, the costs of the FISP is estimated to be almost 60 percent of the total budget allocated to the Ministry of Agriculture and Food Security (MOAFS), which translates into 7.1 percent of the total national budget.²

All in all, the fertilizer subsidy program has been hailed as a success, having ensured sufficient domestic supplies of the maize food staple and providing for surplus exports to neighboring countries for some years (Denning et al. 2009). However, critics point to its 15 percent contribution to the MOAFS total-budget allocation toward core functions (for example, research and extension). Moreover, the tendering system of awarding procurement of fertilizers for the subsidy program is not immune from criticism. A recent World Bank (2011) report points to inconsistencies in awarding tenders to companies with long-standing business ties with ADMARC and a less than perfect transparency system on the selection and awards process.

² Authors own calculations based on budget estimates delivered to the National Assembly on June 2011 by the Ministry of Finance, Government of Malawi (see Government of Malawi, 2011).

2. THEORIES OF POLICY PROCESSES AND THE ROLE OF KNOWLEDGE

While policy research is meant to impact—or feed into—policy decisions, understanding how to ensure impact requires a grasp of the complex processes by which policy decisions are made and the way in which research and knowledge can influence those decisions. There are a variety of theories about the processes by which policy decisions are made and how research interact with those processes that help inform our analysis of Malawi’s policy landscape. According to most theories, intricate interactions of multiple groups of actors comprise the policy process. Some consider the power relations among these actors as a determining factor in policy outcomes, and most see knowledge as just one of many competing factors that may influence policy. Furthermore, the level of government autonomy may affect the degree to which it must weigh and consider various sources of knowledge.

Linear and Iterative Approaches

In reviewing the broad literature on policymaking, we found that theories on policy processes can be grouped into three distinctive approaches: (1) linear and logical; (2) iterative, muddling-through, and incremental; and (3) enlightenment.

Linear and logical approaches, now largely described as unrealistic in the literature, assume policy decisions follow a simple linear process of planning, implementation, and evaluation. This model reflects assumptions that the process is purely objective and unaffected by political and value system beliefs and that policymakers are easily persuaded by the results of research.

As argued by proponents of the second approach, policymakers muddle through the decision making process in a pragmatic fashion to expand their *policy space*, or range of feasible policy options (Thomas and Grindle 1990). This involves compromising policies under competing demands in an iterative, incremental, and complex process of policy formation and implementation. Information from researchers plays a minimal role in this approach and then only in the context of a policymaker’s own agenda (Garrett and Islam 1998). This viewpoint is broadly shared across a number of proposed theoretical frameworks, such as the *bounded rationality*; *satisficing*; *iterative, incrementalist*, and *muddling through*; and *policy paradigm* models (see Lindblom 1980; Omamo 2004; Stone 2001).

The iterative models theorize that policymakers must understand the particular conditions under which links between research and policy are effectively made. Relevant aspects of the conditions include the political context, bureaucratic structures and institutions, interest groups, types of interactions and influences, and value systems. The often referred to research-policy-divide stems from the existence of two distinct communities—the suppliers of research (the scientists) and users of knowledge (the policymakers). Some notable models used in the developing-country context include the RAPID (Research and Policy in Development) framework for analysis developed by the Overseas Development Institute (ODI) (Young 2005) and the knowledge systems concept developed at Harvard University (Cash et al. 2003). In the RAPID paradigm, research and policy elements intersect to establish effective links between all the actors involved (researchers, civil society, media, and policymakers). The ODI group identified four key elements that explain the way research can be integrated into the policy process: external influence, political context, and evidence and links (Court and Young 2003; Young 2005).

The knowledge systems concept takes on a similar perspective to RAPID, arguing that research impacts policy when it can create close links between the actors involved (individuals and organizations on both the supply and demand sides) and the products of research (Cash et al. 2003). Salient, relevant, and credible knowledge created in these conditions will more likely influence policy. Therefore practical solutions to help establish closer links between research and policy—from improving communications and outreach to examining a number of institutional and network arrangements that serve important *intermediary boundary* or *brokerage* functions—are critical to ensuring the consideration of research outcomes in policy (Cash et al. 2003; Guston 2001). Alternatively, others look more broadly at organizational structures of innovation or *innovation diffusion* for research and knowledge pathways that can be opened up between both researchers and policymakers (Crewe and Young 2002).

Enlightenment, Discourse, and Actor-Network Approaches

Recognizing the multifaceted, and rather imperfect and indirect utilization of research outcomes in policymaking, a third subset of authors take a position we refer to as the *enlightenment* perspective: Research feeds into the policy process over time through discourse, learning, and social interactions. This third view includes theoretical frameworks such as the *knowledge utilization*, *policy narratives*, and some *actor-oriented* models (Lindquist 2001; Stone 2001; Weiss 1977) through which knowledge is considered cumulative, involving a dynamic learning or enlightenment process, and research exerts only an indirect impact on policy over time and through the influence of many actors (the media, interest groups, research communities, governments, and so on). In other words, research findings eventually alter the perspectives of policymakers as the demand for change in the political arena increases and as knowledge about effective and ineffective practices is realized. The emphasis in these models is on the power of ideas—based on tacit and/or explicit knowledge—and the deals that are struck among different and diverse actors within a constantly changing environment (Keeley and Scoones 1999; Sabatier and Jenkins-Smith 1999; de Vibe, Hovland, and Young 2002).

From the enlightenment perspective, one views the process by which research influences policy as happening over time and involving many actors, of whom researchers are only a subset. It contrasts with other models in which researchers supply knowledge and policymakers ultimately use it to bridge the research-to-policy divide. The recognition that many actors engage in a dynamic political and social setting has led to an increased focus on political science and social-network approaches to understand the role of research in the policy process.

Keeley and Scoones (1999) described a *discourse* perspective, similar to the enlightenment approach that also emphasizes the complexity of multiple actors involved in the policy process. The discourse model focuses on the relationship between knowledge, power, and policy, thus allowing for analysis of the *webs of power* underlying the behaviors and practices of the various actors. In this model, expertise is a form of power with which experts can normalize assumptions about the world (Shore and Wright 1997). The discourse determines the experts, the legitimized research results, and the dominant concepts. This discourse, while it may be mobilized by specific actors, is not entirely controlled by any individual or group; it is a force of its own (Keeley and Scoones 1999).

Actor-oriented or actor-network approaches, like social network analysis, revolve around the spread of knowledge. The division of the policy landscape is broken into different groups—such as government, civil society, research, and so on—and is based on the interactions across them (Keeley and Scoones 1999). Social network analysis (SNA) explains the power and influence of actors by looking at the structure of network linkages (Hanneman and Riddle 2005). In network theory, power is inherently relational; that is, an individual has power as a result of being able to dominate others as a consequence of relationship patterns. Viewing the policy landscape as a network of actors and their exchanges allows for understanding the relational power structure for a given context.

Political Economy Perspectives

In the political economy literature, explanations of policy change typically center around two dominant perspectives: society or state centered (Grindle and Thomas 1991). The society-centered perspective focuses on the role of interest groups and collective action in explaining policy outcomes. The state-centered model, in contrast, describes the condition in which national-level decision makers and government agencies exercise more power over policy decisions than any other stakeholder group.

The political economy model is especially important in the African context because it not only explains the influence of shifting development paradigms and policy narratives as new knowledge becomes available, but also acknowledges that knowledge can easily become overshadowed by political interests (Sabatier 2007). As long as government can exercise sufficient autonomy with little resistance from society, only knowledge that helps to support a particular policy or affect its implementation will be considered in policy formation. Similar to the above discussion of discourse approaches, deciding on the knowledge to include and identifying the people to be informed involves acts of power (Leach and Mearns 1996).

3. RESEARCH OBJECTIVES AND METHODOLOGY

The key objective of this study is to understand the fertilizer policy landscape in Malawi and the role of research in that landscape. More specifically, results provide guidance on ways policy researchers and research institutions (such as IFPRI) can better integrate within processes to impact policy over time. We take an actor-network approach in our analysis to assess power and knowledge flows. In addition, we examine the data from a more traditional multistakeholder perspective to assess the role of actor-groups—such as research bodies, government bodies, and civil society organizations—in the network and determine the extent to which the policy-process frameworks cited in the literature makes sense in the Malawi context.

The choice of methodology for our case study draws on social network theory. Specifically, we adopt the Net-Map interview method (see Schiffer and Hauck 2010) to examine both formal and informal structures of the current policy landscape. This tool, described in detail below, allowed us to map the distinct policy landscape using network data, which revealed the structure of power and relationships through the network of information flows. Social network analysis provides a powerful tool to illuminate policy landscape characteristics.

The network data described are combined with results from influence mapping, which provides a snapshot of the hidden aspects of the power structure in the network. Finally, because the Net-Map interviews are executed as semistructured in-depth discussions, we were also able to collect and analyze qualitative information on the role of research in the policy process, the quality and other characteristics of the links, the influence sources of actors, and other aspects about the context critical for this assessment.

Because the fertilizer subsidy program took shape over many years, adapting to earlier versions in terms policy instrument details and targeted beneficiaries, the Net-Map analysis offers only a snapshot of the policy landscape at the time of mapping. We rely on the context provided in the Net-Map interviews as well as reviews of supplementary documents to enrich our understanding of the ways in which actors have tried—successfully or not—to influence the policy over time, as well as the extent to which policy spaces for research emerged.

The Net-Map Approach

As discussed above, the Net-Map approach combines the mapping of social political networks through in-depth qualitative discussions and additional information about actor goals and influence. In using it to collect data on the contemporary fertilizer-policy landscape in Malawi, we further adapted it to include questions specific to the case study and on-the-ground reality with respect to the actors involved, including the power structures and linkages among them.

The Net-Map approach consists of adopting a number of simple steps for undertaking the interviews that ultimately allowed us to identify the key actors in the fertilizer subsidy program policy decision process and determine the connections among them:

1. Define the question—Who influences XY?
2. Write names of actors on cards and distribute on empty map,
3. How are they linked? Connect actor cards by different colored arrows indicating different kinds of links.
4. How influential are they? Set up influence towers (stacks of wooden pegs) next to actor cards according to their influence.
5. Discuss map with interview partner.

To ensure that everyone started the interview with a similar level of basic background information, some general figures and characteristics of the current subsidy program and its distribution plan were described before the dialogue was initiated. The rest of the interview process involved asking a

series of questions (shown above) to collect the following data: (1) names of principal actors, (2) flows of policy pressure and advice, (3) sources and flows of evidence-based information, (4) degree of influence of each actor, and (5) follow-up qualitative questions.

The interviews were conducted in the capital city of Lilongwe, except for one undertaken at the University of Malawi in Zomba. Interviews were undertaken by a small team of IFPRI researchers partnering with local collaborators. Interview sessions of approximately 2 hours each were held with individual interviewees representing their organization, or at times 2-3 individuals participating from the same organization. Candidates for the first set of interviews were selected from an interview with a technical advisor in MOAFS. In successive interviews, the actor name-generation component of the interview revealed additional interview candidates, as in snowball sampling, and technique useful when the population (in this case the population is the complete network) is unknown or difficult to determine (Spren 1992).

The interviewees included 21 key stakeholders, either involved to some degree in the shaping of fertilizer policy or acting as keen observers of the policy process from within an organization directly linked to the fertilizer subsidy program (for example, the Ministry of Agriculture) or following the process (for example, the media). The interviews took place in November and December of 2009.

Naming Principal Actors

To get a full understanding of all actors involved, the first question to each interviewee was: “Who were all the actors who were involved in the process that led to this year’s fertilizer subsidy level or other aspects of the fertilizer subsidy program? Please name those who had a formal role in this process, but also those who were involved in a less formal way, for example by trying to lobby for an outcome or providing research findings. Actors can be individuals or organizations.”

The names of actors were written on small note cards and placed on an empty sheet of paper, in no particular order. If a respondent thinks that a group of actors (for example, different nongovernment organization) have the same kinds of links, goals, and influence, the groups are considered a composite actor and links are directed to the group and not the individual actors within the group. This rule helped reduce the potential complexities that could arise in drawing established links between actors, both among individuals and organizations. In essence, the most important links were highlighted according to the perspectives of the interviewee with regard to the flow of information and advice, whether through formal or informal channels, and then whether through individual or organizational linkages.

Flows of Policy Pressure and Advice

The interviewees first drew links of policy pressure and advice. In recognizing that the formal structures of the policy process in government can be obtained from published sources, the interviews focused on informal links and influences that were involved in shaping the current fertilizer policy. Only those who have been part of, or close to, the policy process itself can understand the informal connections. Interviewees drew arrows between the actors involved in the provision or receipt of policy advice or pressure, according to their own understanding and perspective. Sources, Funders, and Dissemination of Evidence-Based Information

To track the role of research, we asked the respondents to name specific outputs referenced in the dialogue that led up to the final design of the fertilizer subsidy program. To indicate how the outputs, if any, came into the process, directional arrows were drawn to indicate the funders, the researchers or writers, and the entities to whom the outputs were disseminated or targeted.

Degree of Influence of Actors on Fertilizer Policy

Next, emphasizing aspects such as the level, targeting, and means of distribution of the subsidy, we asked the interviewees the degree of influence of each actor in determining the FISP design for the year in question. The focus on these tangible aspects of the fertilizer program ensured that all parties gained a

clear and common understanding of the facet of the policy being influenced. Additionally, a common definition of the term *influence* was provided to each interviewee: “Influence refers to the ability of one actor to affect change—or to produce a particular outcome—even when faced with resistance.” It was emphasized that we are only interested in *actual* influence in the policy process, not possible or expected influence.

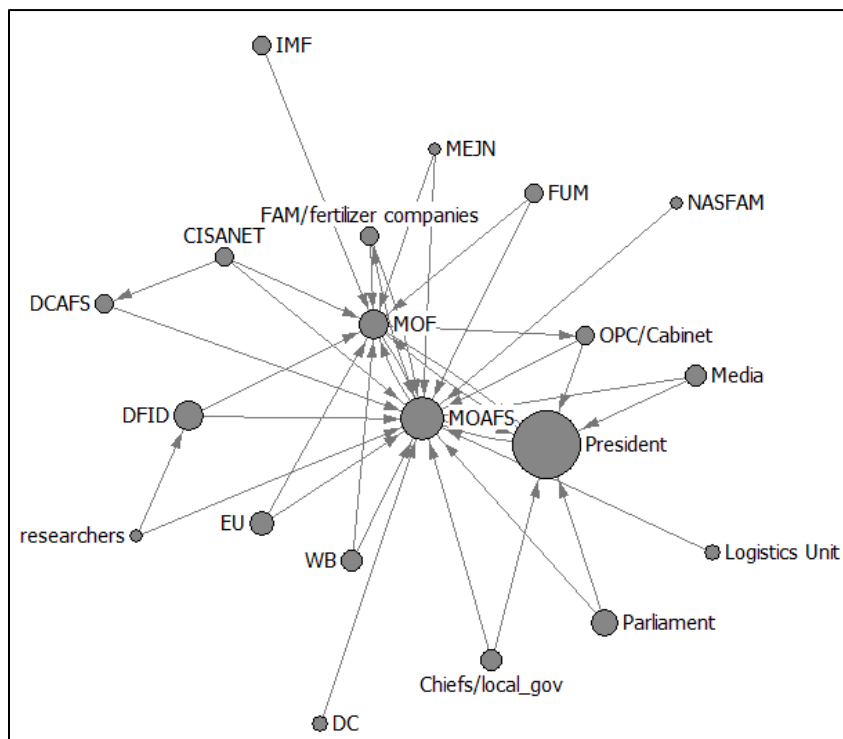
To measure the degree of influence, we asked respondents to designate an influence score for each actor: 0 indicated *no influence* and the respondent chose a maximum influence. (That is, the interviewee decided the range of influence.) To make the scores comparable across interviews, we normalized the scores to values between zero and one.

Data Analysis

The primary method of analysis is the application of SNA techniques to the network data collected from the 21 respondents. The findings were further supported and validated by the qualitative data from interview notes. The links on policy pressure and advice were aggregated across the 21 interviews before the application of quantitative and descriptive network analysis techniques. In most of the networks shown and analyzed, we only chose links mentioned by at least three experts to ensure that the final network represents a common understanding and is not biased by a single outlier perception. (For some specific purposes, network parameters were loosened to require agreement between only two experts.)

We also calculated the average influence scores across the 21 interviews. If an interviewee did not mention a specific actor, we gave the actor an influence score of zero, as being uninvolved in the process would implicitly mean that the actor was not involved in influencing the end outcome. See Figure 3.1.

Figure 3.1—Fertilizer subsidy program network



Source: Authors’ calculations from Net-Map data, analysis with UCInet (Borgatti 2002), and visualizations with Visualizer software.

Notes: Arrows depict provision of policy pressure or advice. Nodes are sized according to the average influence score.

Responses on the funding and dissemination of research products were compiled across all of the interviews (although only 12 respondents said that they knew of some specific research products and could say who funded them or where they were disseminated). We chose the funding and dissemination links that were mentioned by at least two experts. These data were displayed together in a network and analyzed for centrality measures.

4. UNDERSTANDING THE POLICY LANDSCAPE FOR THE FERTILIZER SUBSIDY PROGRAM

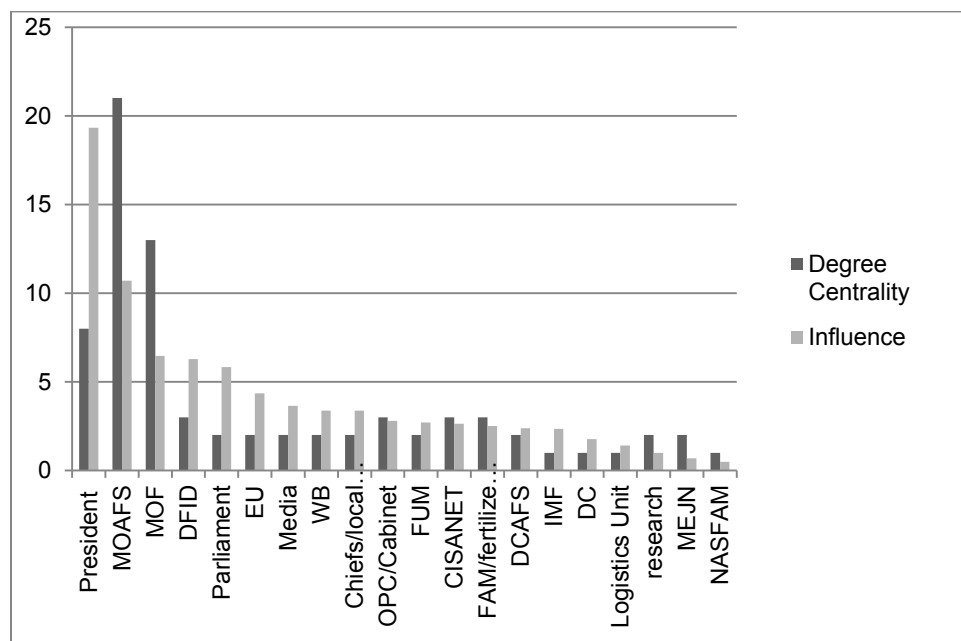
In this section, we describe the results of the analysis of the social network data, in-depth interview discussions, and supplemental document reviews. The combined information from these sources provides a snapshot of the critical dynamics and characteristics of the fertilizer subsidy program policy landscape. We first describe the overall shape of the network, emphasizing the role of a few core actors. Then we examine the role of the private sector, including the program beneficiaries—farmers. Finally, we assess the role that researchers, including those development partners funding research, and research results have played in the network.

The Core Actors

The first striking characteristic of the network shown in Figure 3.1 is the high network centralization. A perfectly centralized network has one main actor with the others actors arranged around it with no lateral links such that all interactions go through the central actor. The fertilizer policy network has a few highly central actors—the Ministry of Agriculture and Food Security (MOAFS), Ministry of Finance (MOF), and the president—with all other actors arranged around them, trying to advise or influence them with regard to their policy decision. According to the core-periphery analysis, the network core—made up of highly central actors that are highly linked to each other and surrounded by peripheral actors who are not well connected—is made up of MOAFS and MOF. Because of the overlap of the President and MOAFS, we also consider the President to be a part of the core.

Figure 4.1 shows the comparison of individual actor characteristics: namely degree centrality and attributed influence. It demonstrates that, while the MOAFS has the highest degree of centrality, it is not the most influential actor when it comes to determining the level and shape of fertilizer policy. Instead, a majority of the interviewees in the sample agreed that the president is by far the most influential actor in this respect.

Figure 4.1—Comparison of influence scores and degree centrality values



Source: Authors' calculations from Net-Map data analyzed with UCINET software.

The finding that the president is considered the most influential actor is unsurprising. When it comes to agricultural policymaking, at the time of the interviews, the President of Malawi was also simultaneously serving as the Minister of MOAFS. In addition, the president had publicly placed great importance on the fertilizer subsidy as an important part of the country's agricultural policy, and ultimately, overall national development strategy for achieving income growth, food security, and poverty reduction.

From the remarks of a number of interviewees, we found that the dual duties of the president had mixed results on the shaping of agricultural policies in Malawi. The double-role of president and minister allowed him to ensure that the agricultural sector would be considered a priority for national development policies and budgetary allocations. Furthermore, in his capacity as minister, he made technical decisions and recommendations on the design of the fertilizer policy and its instruments. These responsibilities meant he could exercise influence both from a political and technical perspective, thus exerting full and direct control over the operations of MOAFS, which commands the most extensive outreach organ in the government system through its extension department. However, this situation also made the minister (and president in this case) less approachable to technocrats within MOAFS and other external stakeholders than in the traditional situation in which an appointed minister serves the president.

This position of high power and low approachability is reflected in the network map in Figure 3.1 and also the relatively low degree of centrality and high influence as shown in Figure 4.1. Figure 3.1 clearly shows that the president was only accessible to a few, very select actors who had close political or personal ties to him (for example, through the cabinet, the parliament, the MOF or MOAFS, and the chiefs/local governments), the one exception being the media. The majority of actors in the process often must go through gatekeepers, either lower level representatives within MOAFS or, to a lesser extent, the MOF, to make their policy concerns heard.

The high level of presidential power is also apparent in the manner by which he makes decisions. A good example of this power, as cited by many of the respondents, was the campaign pledge the President made to decrease the amount of money a farmer would need to pay for a bag of fertilizer under FISP. While campaigning he declared that the price would decrease from MWK 800 to MWK 500 per bag, which is exactly what happened during the 2009/10 year of the subsidy program (Logistics Unit 2010).

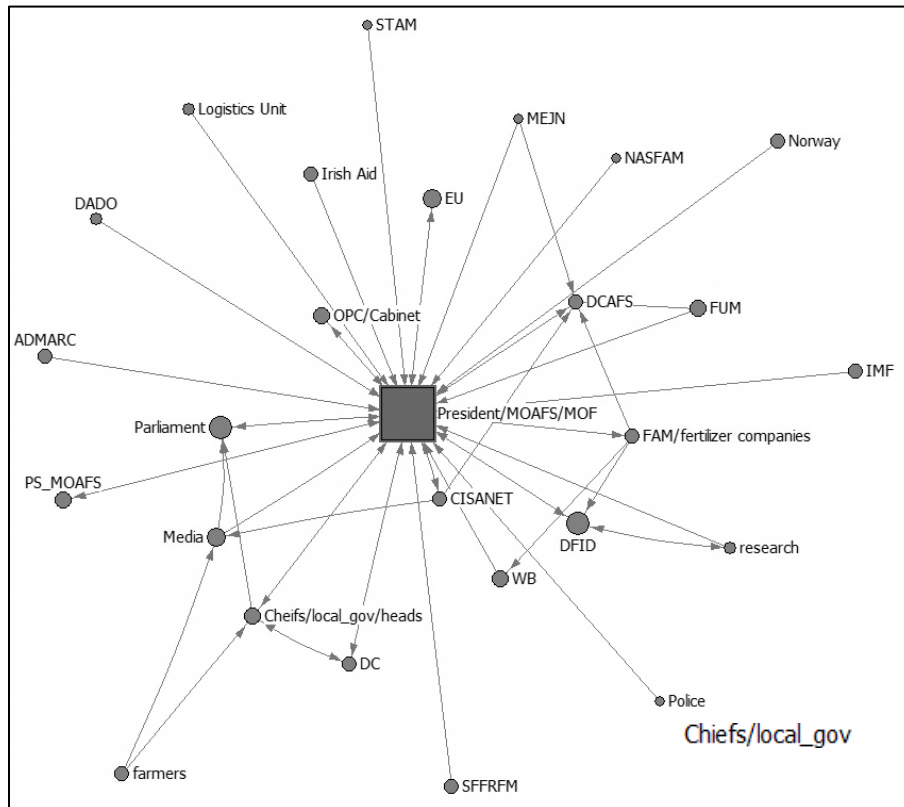
According to some of the narratives offered by respondents, during the campaign year leading up to the 2009 elections, the promise of greater fertilizer subsidies coincided with a dramatic increase in world prices for fertilizer and food stuffs. At the time, the government had already procured more than the 170,000 metric tons required for that year—a decision that would later prove burdensome to the national budget as prices increased. However, rather than increase the farmers' share of the payment for a bag and thus recoup some of the previous year's losses, the political imperative to stick with the initial promise of MWK 500 per bag was too strong. While this put more pressure on the budget and foreign exchange markets, it nevertheless resulted in a bumper crop due to the increased fertilizer use among farmers and a year of good rains.

The Private Sector

Fertilizer parastatal and private sector actors are involved on the implementation side of the fertilizer subsidy program—procurement, distribution, and delivery of the fertilizer. Although interviewees saw these organizations as important policy influencers, not all of these actors show up in the network figures; the Fertilizer Association of Malawi (FAM) shows up as representing fertilizer companies, but parastatals such as Agricultural Development and Marketing Corporation (ADMARC) and Smallholder Farmers Fertilizer Revolving Fund, Malawi (SFFRFM) as well as specific influential companies, such as Mulli Brothers, were also mentioned by many interviewees. However, interview partners were either unclear or inconsistent on the way in which these actors engage in the network. This may be due to strong but informal and invisible relationships between these organizations and the government such that respondents seldom agreed on the network links.

Therefore, to be able to represent the issue in more detail, we relaxed the cut-off points such that the links among actors were included if mentioned at least twice (instead of three times, as in Figure 3.1). The results are shown in Figure 4.2. In addition, the *core* actors were collapsed to show a single hub. This depiction of the network shows nine additional actors, including the private sector and parastatal actors ADMARC, the Seed Trade Association of Malawi (STAM), and SFFRFM. The private sector actors are linked directly to MOAFS and no others. The Permanent Secretary of MOAFS (PS_MOAFS), District Agriculture Development Offices (DADO), farmers, police, the Royal Norwegian Embassy (*Norway* in Figure 4.2), and Irish Aid are also shown.

Figure 4.2—Broader policy network with collapsed core



Source: Authors' calculations from Net-Map data, analysis with UCINET, and visualizations with VisuaLyzer software.
 Notes: Arrows depict provision of policy pressure or advice. Nodes are sized according to the average influence score.

The interviews suggested the way that fertilizer was procured, distributed, and retailed has changed substantially during the five years of FISP implementation, specifically in terms of the volume channeled through private sector entities versus parastatals and involvement of the private-sector retail network in the redemption of vouchers (Logistics Unit 2007, 2008, 2009, 2010, 2011). As some of the interviewees explained, under past administrations the private sector had a stronger involvement in the retailing of fertilizer. Under the administration at the time of our interviews, the parastatal organizations ADMARC and SFFRFM had assumed—or resumed—responsibility for this aspect of the trade (Logistics Unit 2007, 2008, 2009, 2010, 2011). So, while the private sector is free to sell fertilizer through their own retail networks, the government's decision to utilize their parastatal structure to distribute subsidized fertilizer to farmers has the potential to crowd out private sector distributors, especially if it is being targeted in areas where they have retail outlets. This concern was raised by many of those interviewed.

The private sector remained active in the procurement of fertilizers for import and distribution to ADMARC and SFFRFM warehouse depots throughout the country, which are dominated by the large fertilizer companies. For the 2008/09 period, for example, 10 private fertilizer suppliers were contracted to procure an official total of 186,000 metric tons of fertilizer and delivered their respective quotas to three regional SFFRFM depots in Blantyre, Lilongwe, and Mzuzu. From there, more than 20 transport companies earned contracts to distribute the fertilizer among the hundreds of ADMARC and SFFRFM retail markets around the country.

The final beneficiaries of the fertilizer subsidy are smallholder farmers, of whom approximately 40 percent are reached through the program on an annual basis. In theory, they have a strong interest in affecting policy. However, respondents rarely mentioned them as connected with the policy process in Malawi. Therefore, to assess their position in the network, we looked at Figure 4.2 (with relaxed cut-off points). To highlight the farmers' unique position in the overall fertilizer policy landscape, we collapsed the three core actors, MOAFS, MOF, and president, into one core group. From this, the farmers were singled out as the only actor in the network without any direct links to the core. If they want to make their voices heard, farmers have two possible pathways. The first is through the media and the second is through their local government structures.³ Surprisingly, interviewees did not indicate that farmers could voice their concerns through the official channel of the Farmers' Union of Malawi (FAM)—or any other local farmers' organizations for that matter—to have them relayed to members of the core group.

Research and Development Partners

One of the key objectives of this study has been to better understand how research may have played a role in influencing the form of fertilizer policy in Malawi. From this information, future strategies can be adopted to increase the likelihood of research entering the policy process. Most respondents agreed that research was not highly influential in determining the design of the fertilizer subsidy program.

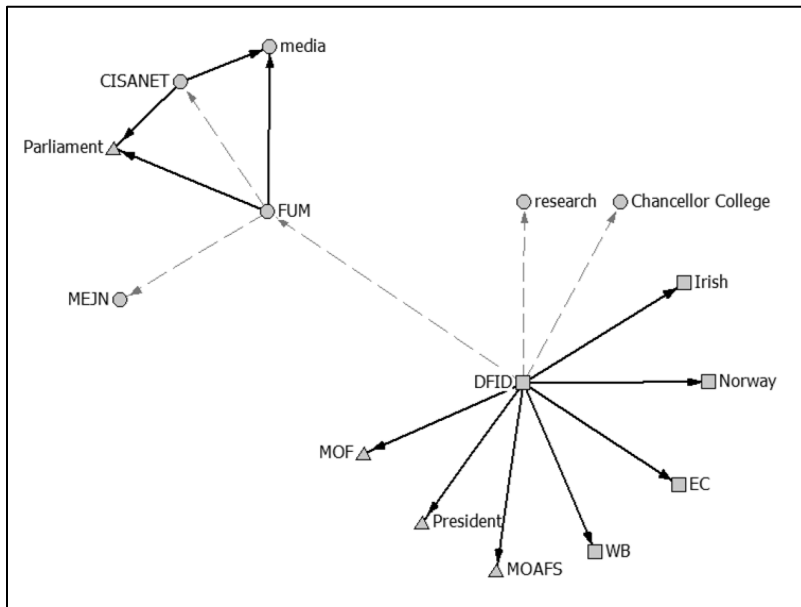
A majority of the interviewees pointed out three or four key individuals from the research community, rather than the organizations with which the researchers were affiliated, as influencing the process. These individuals came from both local and international academic institutions and were described as regularly taking on donor-funded policy research consultancies on this issue. They are depicted as *research* in the network figures (Figures 3.1, 4.1, and 4.2).

The research funding and information network is depicted in Figure 4.3. On this issue, the UK Department for International Development (DFID) was the sole funder of research. (FUM was a subcontractor to two other civil society organizations). The DFID was also the primary actor disseminating research results to network participants. The two research products that respondents repeatedly mentioned were a quantitative evaluation conducted by Chancellor College and a qualitative study examining the equity of fertilizer voucher distribution.

As evident in the literature review by Johnson and Birner (2011), the donor community traditionally commissioned much of the policy research undertaken on fertilizer policies in Malawi to promote and assess the impact of their own investments into these areas. The results indicate that the DFID contributed funds toward this program and therefore may have been particularly interested in undertaking research as well.

³In focus group consultations, some farmers noted that they do receive extensive advice from local representatives of the MOAFS; however they did not see this relationship as one where they could apply pressure or advice regarding policy change. These findings are consistent with the Net-Map results.

Figure 4.3—Research funding and dissemination network



Source: Authors' calculations from Net-Map data, analysis with UCInet, and visualizations with VisuaLyzer software.

Notes: Broken lines depict research funding and solid lines depict research dissemination.

Node shape depicts actor type: □ = development partners; Δ = governmental; ○ = civil society, research, and other.

While interviewees cited few examples of studies undertaken on FISP, during the time when the president was considering imposing the MWK 500/bag subsidy, a number of parliamentarians requested a costs-benefits evaluation of the proposed subsidy relative to food aid costs (Chinsinga 2007). Proponents for a universal subsidy pointed to the cost of food aid imports (MWK 13 billion) in comparison to the proposed bill for a universal subsidy (MWK 4.7 billion), while also referring to earlier research by Stambuli (2002) who had observed that maize imports for food aid constituted the second largest item of the Malawian budget. Chinsinga (2007) cited Stambuli in arguing that the cost for importing a metric ton of maize to feed five families for a little over 3 months was enough to procure fertilizer to produce 10 tons of maize and enough to feed the same five families for 10 months.

5. CONCLUSION AND IMPLICATIONS FOR FUTURE RESEARCH

In the review of frameworks for policy analysis, we found many different approaches to assist in the understanding of policy processes. In this study, we chose to apply actor-network perspectives to assess the policy landscape in Malawi for the fertilizer subsidy program. From the analysis of data we come to the following conclusions:

1. The policy network is highly centralized and thus highly controlled by the top echelon of key actors in the Malawian government: the Ministry of Agriculture and Food Security (MOAFS), the Ministry of Finance (MOF), and the president. Although the president is not as highly central (in terms of degree of centrality and betweenness of centrality) as the other two core actors, he is still by far the most influential according to the results of our influence mapping, if not the driver, of this core. This is not surprising considering the key role of the president and Malawi's political history, which has been described as having a "Big Man" syndrome following decades of authoritarian rule under the reign of Malawi's first president, Dr. Kamuzu Banda. This governance is sometimes referred to as a *neo-patrimonial* regime structure and describes the typical systems of modern government that emerged soon after independence movements in Africa, where political power is based more on patronage than on the implementation of policies (van de Walle 2001; Cromwell and Chintendza 2005).
2. Below the top-echelon core of power brokers, other actors exercise some influence but are rarely successful. While some actors (for example, donors and civil society organizations) attempted to influence the process, change remained largely top-down and centrally driven, which suggests a top-down model of a state-centered policy process. However, one would expect that the degree of centralized control would vary in other less politically sensitive realms than the highly political realm of food security and particularly fertilizer. For instance, a network, as depicted by Net-Mapping activities, completed in Malawi on a different topic (HIV/AIDS and family planning) showed a more highly decentralized network, wherein many more actors exert influence from outside of the government (Aberman 2010).
3. While the government and external actors (mostly driven by DfID) conducted research, most interviewees did not consider the results to have been influential in the policy process. The respondents stated that any actors who were not supportive of the program did not engage in the policy discourse, while those that were supportive of it engaged to some extent on issues of implementation (the *how*). This is in contrast to earlier periods when researchers were able to play a more influential role in shaping the national fertilizer policy, such as during the development of the Starter Pack program (see Johnson and Birner 2011).

Implications for Policy Researchers

As our study of the contemporary Malawian fertilizer policy landscape has shown, research only played a marginal role in the policy making process, except when it involved decisions related to the details of implementation. The experience of the creation of the 2005/06 fertilizer subsidy underscores the complexity of Malawi's policymaking process; it involved power relations and bargaining among the president and key actor coalitions.

A principal challenge dealing with policy processes relates to interactions among the technical-line ministries, which are typically charged with implementing programs and strategies. In agriculture, for example, experts such as agronomists, veterinarians, soil conservationists, and economists get involved. Among this group, a top-down, technical approach is the easiest approach for advising policymakers. With this observation in mind, Cabral and Scoones (2006, 22) argued that "a big challenge for a revitalized, twenty-first century ministry of agriculture is to improve the capacity and competence in convening, managing and understanding policy processes."

Our attempt to map out the fertilizer policy landscape is a useful first step to unlocking an inherently complex process and understanding the way policies are made. As the results show, the political context and power relations matter a great deal, but so do the government bureaucracy and its relationship to international donors, whether good or bad, especially when designing policy instruments. The analysis also provides valuable insights on the importance of ownership in the identification of policy research needs, the manner in which research outputs are generated, and the degree to which both are closely linked with the policy process and associated influential actor networks; important dimensions to grasp if research is going to have any relevance in decision-making processes. This information is critical for the design of support interventions such as the Strategic Analysis and Knowledge Support System (SAKSS) project, which aims to lift the profile of research evidence in policy formulation.

How then should researchers improve their understanding and links with the policy process and actor networks? We attempt to answer this question by drawing on the literature for possible solutions from a functional perspective. First, recognizing the inherent weak link between researchers and policymakers, especially evident in our Malawi example, we advocate consideration of strengthening institutional and network arrangements that serve important intermediary, boundary, or brokerage functions (see Guston 2001; Cash 2000; Jones, Jones, and Walsh 2008). In essence, the boundary function plays a critical role in improving communications and serving as a neutral broker between researchers and policymakers. Second, to strengthen such linkages across a range of policymakers, researchers, practitioners, and other actors, bonds must be based on shared interests and resource relationships. Such networks, or rather the coalitions formed within them, usually have strong incentives to influence policy outcomes (Howlett 2002). To this end, the goal remains to decipher the complex pattern of interactions among the key individual actors and organizations to determine the existing network linkages that will ultimately influence policy change (Mendizabal 2006; Howlett 2002).

In the context of the Malawian agricultural sector, and the fertilizer policy in particular, the MOAFS occupies a central role in the network. It not only generates and provides technical input to political decision makers, it also functions as a gatekeeper, controlling the information flow from a wide range of network members to the decision maker of the network, the president. Inserting policy research, from its inception to the generation of outputs, into the decision-making process at this point of entry (that is, with the MOAFS as gatekeeper) may offer the greatest opportunity to achieve maximum impact.

However, we also recognize that the ability of MOAFS to appreciate, evaluate and comprehend research outputs is a critical factor in determining the impact that any research will have in the policy making process. Therefore, one goal is for MOAFS to engage more with the research community, improve its capacity for impartial identification of research needs and comprehension of research results, and ultimately, for effectively communicating its policy recommendations. To further this aim, IFPRI has placed its SAKSS project near the center of the policy network: the Planning Department of the MOAFS. Implemented by an international research organization with funding resources dedicated to responding to demands expressed by MOAFS and its key stakeholders, this arrangement provides the best possible compromise between maintaining the independence of the research process and instilling a maximum ownership of research outputs. Thus, by serving as a kind of boundary organization, the SAKSS project can help bring credibility to research—and thus the policy decisions informed by this research—through its existing ties with strong research institutions and relevance as a neutral broker. Specifically, it can network and build linkages with local institutions and individuals who ensure that the research process is well grounded in the Malawian context. A principal challenge for such a setup is maintaining sufficient neutrality from the influence of donors who fund the program.

Concluding Remarks

Using the results to improve policymaking provides the major rationale for conducting policy research. Literature suggests that getting a good handle of a country's own policy process is an important first step to understanding how research can play a role in it (Sabatier 2007, Philips and Seck 2004, Juma and Clark 1995). However, the question should not simply revolve around the value of injecting research into policy but should focus on enabling stakeholders to understand the policy process in order to effectively apply relevant research and knowledge to the important policy issues. This becomes even more important as African governments and their development partners seek to improve policies for greater development impact by increasingly depending on best-fit practices and research results.

To help improve understanding of the role and influence of research in the contemporary African context and within the agricultural policy landscape, we examined the case of the current fertilizer subsidy program in Malawi. The case study offers an important example of a specific policy with far reaching implications for the food security and well-being of Malawians.

Against this background, we mapped out the current fertilizer policy landscape using the participatory tool Net-Map to examine the ways in which research can influence policy change and gain impact in Malawi. Results from both a literature review and the Net-Map analysis show that fertilizer policy formulation in Malawi has been largely influenced by embedded political systems, interests, and power relations that involve a number of key actors among the donors and government. Only marginal influence by other actors in the private sector and nongovernmental agencies, media, and the farming or academic communities was observed.

While domestic politics have certainly dictated the formulation of fertilizer policies, especially as political leaders sought broad support of a general electorate made up of mostly poor smallholder farmers, external pressure from donors has also played a significant role. However, research played an insignificant role. As the attention has shifted away from the debate of whether the fertilizer subsidy is warranted or not, questions about the best design for the subsidy are now paramount.

The analysis has also provided insights on how best to design and structure initiatives aimed at enhancing the role of research outcomes in policy processes in Malawi's agricultural sector. Key factors in this process appear to be (1) linking closer to the key network actors in the top tier hub—the President's Office, the MOAFS, and the MOF—in undertaking research from its inception to the generation of outputs, as well as those closely involved with implementation design (such as technical departments in the MOAFS and special committees among parliamentarians focusing on an agricultural and food security policies); (2) strengthening the analytical capacity of key technical actors within the MOAFS for determining research needs and interpreting research outputs; (3) strengthening local research capacities among academic and think tank institutions and their interactions with the MOAFS and special parliamentarian committees for undertaking quality and locally relevant research; and finally, (4) boosting the capacity of the MOAFS and network partners among local institutions and organizations for effectively communicating the research outputs to a broader stakeholder audience to promote and achieve consensus supported by credible evidence.

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