Feed the Future Innovation Lab for Food Security Policy

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WHAT DRIVES INPUT SUBSIDY POLICY REFORM? THE CASE OF ZAMBIA, 2002-2016

By

Danielle Resnick and Nicole Mason

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ABSTRACT

When and why do sub-optimal agricultural policies persist despite technical evidence highlighting alternatives? And what explains episodes of reform after prolonged periods of policy inertia? This paper addresses these questions by applying the Kaleidoscope Model for agricultural and food security policy change to the specific case of agricultural input policy in Zambia. Since 2002, the Farmer Input Support Program (FISP) (formerly the Fertilizer Support Program, FSP) has been a major cornerstone of Zambia's agricultural policy. Over the years, however, many researchers have highlighted weaknesses with the program and proposed other options. Based on semi-structured interviews with key stakeholders and intensive process tracing using media, donor, parliamentary, and research reports, this paper examines how the program initially began in 2002 and subsequent periods of reform in 2009 and 2015. Based on the findings here, periods of reform for ISPs are most likely when there is a confluence of multiple factors. These include the emergence of a window of opportunity in the form of either a focusing event (e.g. food crisis) or an institutional shift (e.g. new president or new ruling party) that coincides with broad stakeholder support for empirically-grounded alternatives, available material resources, and sustained commitment from politically important policymakers.

KEYWORDS: Agricultural policy, e-vouchers, input subsidies, policy reform, political economy, Zamba

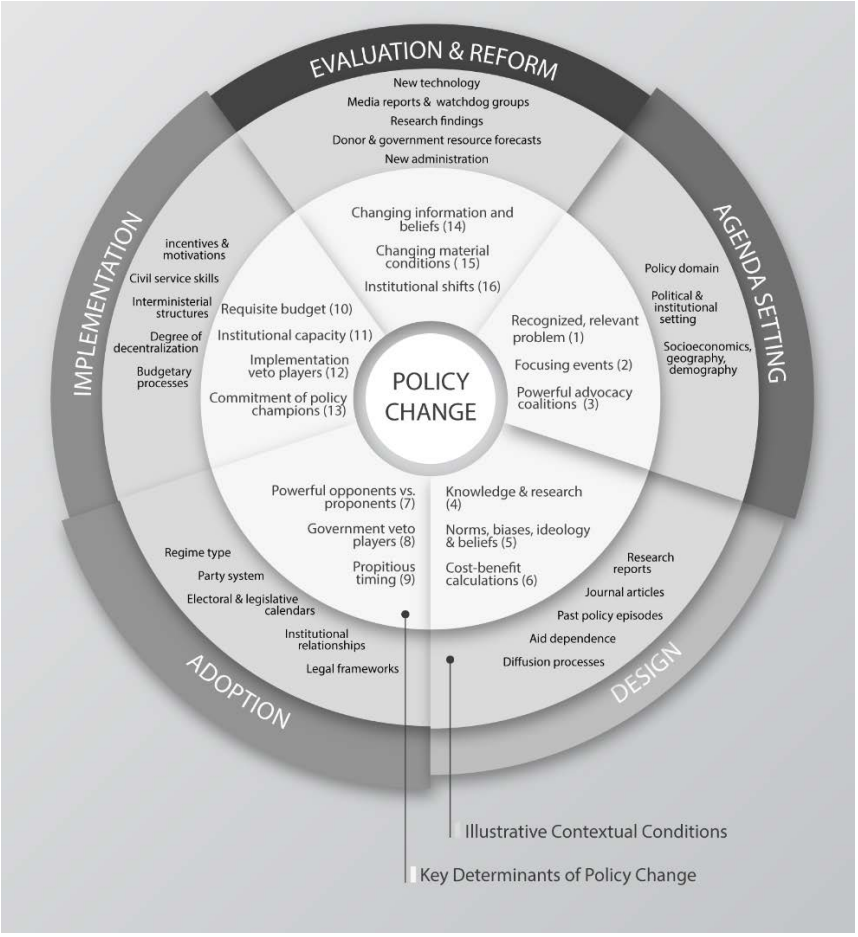
1. INTRODUCTION

Since 2002, the Farmer Input Support Program (FISP) (formerly the Fertilizer Support Program, FSP) has been a major cornerstone of Zambia's agricultural policy. In the intervening years, a large body of evidence has repeatedly pointed to concerns over the program, including its inability to achieve its stated objectives, the crowding out of other important agricultural investments, few opportunities for strengthening the private sector, a lack of transparency in the tendering process, and repeated late delivery of inputs (e.g. Mason et al. 2013; Mofya-Mukuka et al. 2013; World Bank 2010; Xu et al. 2009). Many of the weaknesses of the program are repeated in the Government's own national development plans and agricultural strategies, including the National Agriculture Investment Plan (see MAL 2013). Nevertheless, successive Zambian governments have remained committed to continuing FISP, even though the program was originally intended to be only a temporary measure to last for three years. Therefore, this paper seeks to explain two main puzzles: Why has FISP evolved from a temporary to an institutionalized component of the country's agricultural policy, despite evidence of significant shortcomings? And when and why have major changes to the program occurred, including the recent introduction of an e-voucher?

To answer these questions, the paper aims to apply the Kaleidoscope Model (KM) for agricultural and food security policy change (see Resnick et al. 2015) to assess the extent to which the operational hypotheses of the KM are robust to a range of applied case studies, including large scale subsidy programs. As is now well recognized, sound technical analysis alone rarely results in better-designed policies or improved policy outcomes on its own. Instead, there is an increasing recognition that a more in-depth and refined understanding of how policy change occurs, as well as bottlenecks to achieving better policy implementation and outcomes, is a prerequisite for strengthening agricultural and food security policy. Towards that end, the KM provides an applied conceptual framework to explain drivers of policy change in the agricultural and nutritional policy arenas.

The framework is intended to help answer the question of why a policy change occurs in one geographic locale and not another, in one policy arena but not another, or at one time period but not another. Drawing on other influential studies of policymaking in developing countries (see Fox and Reich 2013; Kaufman and Nelson 2004), the framework focuses on five key elements of the policy cycle: agenda setting, design, adoption, implementation, and evaluation and reform. This allows for tracing why a policy fails to be implemented by taking into account where gaps may have existed during other stages of the policy cycle. As Hall (1993) highlights, policy change is rarely one overarching outcome but rather consists of smaller policy changes related to design, adoption, and implementation along the way. As seen in Figure 1, the inner circle of the KM illustrates 16 key variables, label "key determinants of policy change," that the political economy and public policy literatures suggest are significant (see Resnick et al. 2015 for a review of these literatures). By looking at all elements of the policy cycle, the KM offers more nuanced understandings of when and why smaller changes sometimes cumulate and result in larger outcomes while others do not. In doing so, the KM can help pinpoint bottlenecks to policy change and identify whether improved policies are hindered by low capacity, insufficient political will, or both. Importantly, the model does not suggest that particular variables are *only* important at a specific stage of the policy process or that the policy process is static and segmented; instead, it suggests that these 16 variables are simply more pronounced at one stage of the process than at another.

Figure 1—The Kaleidoscope Model of Policy Change



Source: See Resnick, Babu, Haggblade, Hendriks, and Mather (2015)

We focus on applying the KM to multiple episodes of policy change surrounding the input subsidy, including the initiation of FSP in 2002 and the subsequent reforms that led to FISP as well as the implementation of an electronic voucher ('e-voucher') pilot program within FISP during the 2015/16 agricultural season. By testing the model multiple times in the same country setting on the same policy issue, we gain greater confidence in the model's explanatory power as well as more information about those variables that tend to play a stronger role than others.

Methodologically, the analysis presented here is primarily based on semi-structured interviews conducted with stakeholders based in Lusaka, Zambia and Washington, DC from August-October 2015. Twenty-one individuals were consulted, and the institutions that they collectively represent are presented in Appendix 1.[1] In addition, we used secondary literature from donor programming documents, implementation manuals for FSP/FISP available from the Ministry of Agricultural and Livestock (MAL), peer-reviewed research, and media reports.[2]

[1] We have aimed to protect the anonymity of the interviewees at this time. Consequently, where relevant, we have only listed their institutional affiliation or their stakeholder category, e.g. "politician," "farmer," "importer," "donor," etc.
[2] Note that as of late September 2015, MAL was divided into two ministries: a Ministry of Agriculture and a Ministry of Fisheries and Livestock. As most of the interviews for this study were conducted before this change, we use MAL throughout.

2. OVERVIEW OF THE POLITICAL CONTEXT AND POLICY PROCESS IN ZAMBIA

In 1991, Zambia transitioned from a one-party regime under the United National Independence Party (UNIP) led by Kenneth Kaunda to a multi-party democracy. The elections that year brought Frederick Chiluba and the Movement for Multiparty Democracy (MMD) into office, who remained there until 2001. He was succeeded by Levy Mwanawasa of the MMD, who was re-elected in 2006 and remained president until his death in office in 2008. By-elections that year resulted in his vice-president, Rupiah Banda, becoming president. However, Banda's presidential aspirations were thwarted in the 2011 elections when Michael Sata of the opposition Patriotic Front was elected. Like Mwanawasa, Sata also died in office in 2014 and also was succeeded by his vice president Edgar Lungu who then was elected in his own right in 2015. Consequently, Zambia has been lauded for consolidating its democracy based on Huntington's (1991) metric of achieving two peaceful turnovers of power (i.e. from UNIP to MMD to PF). At the same time, however, the last two decades have been characterized by a high level of political volatility, with significant implications for the agricultural sector more specifically.

Like many other Anglophone African countries, Zambia has a hybrid form of government that combines the Westminster tradition of parliamentary democracy with strong presidentialism (Burnell 2003). Most cabinet members are appointed from the elected Members of Parliament (MPs), creating a problem of conflictual accountability and an incentive to support executive policies. While the executive party historically has always held the most seats in the National Assembly, it rarely has had the majority of seats in the 175 member body.[3] As such, one tactic has been to appoint some MPs from the opposition to be ministers or deputy ministers.[4] This can help increase government inclusiveness and reduce partisan divisiveness but, according to one MP, it may also help undermine dissent against executive policy initiatives.[5] Since MPs actually pledge allegiance to the president upon entering office, rather than the people of Zambia, this type of maneuvering is actually legal. Even though parliament passed a constitutional amendment in January 2016 aimed at reducing executive power, among other things, the ability of the president to continue to choose cabinet members from among MPs remains.[6]

One way that these changes affect agricultural policy is via a shift in the minister of agriculture. As seen in Figure 2, this has translated into a high level of volatility among agricultural ministers as administrations and individual presidents have changed since 2001. In fact, Zambia has one of the highest rates of agricultural minister turnover in sub-Saharan Africa. Chapoto et al. (2015) suggest that there historically has been a preference for weak agricultural ministers in order to ensure the executive a strong role in determining policy for the sector.

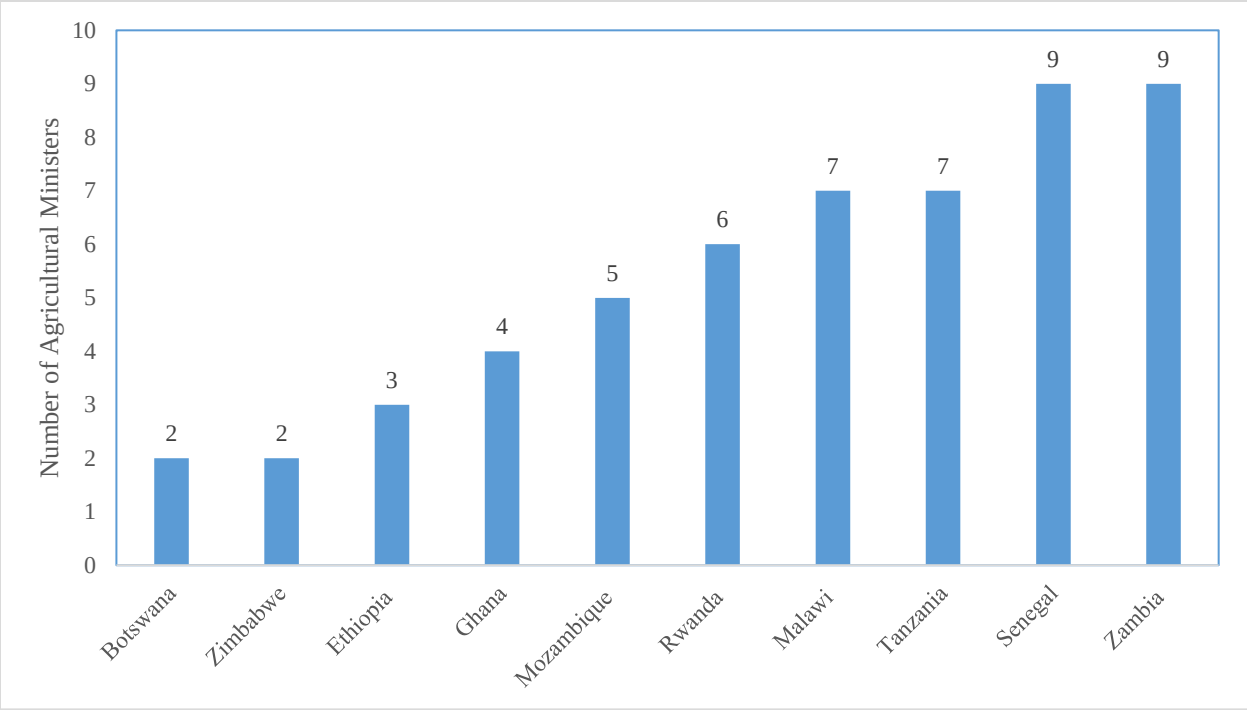
[3] Due to the creation of a large number of new districts and constituencies in the last five years, the number of elected MPs has increased from 150 to 175.

[4] For instance, Mwanawasa appointed ministers and deputy ministers from UNIP, UPND, the Forum for Democracy and Development (FDD), the Heritage Party (HP), and the Zambia Republican Party (ZRP). Sata likewise had cabinet members from the MMD and UPND.

[5] Interview with Member of Parliament, Lusaka, Zambia.

[6] See Section 116(1) of Constitution of Zambia (Amendment), Act No.2 of 2016.

Figure 2—Ministerial Volatility, Selected African Countries (2001-2015)



Source: Calculated from CIA Chiefs of State and Cabinet Members of Foreign Governments, Available at: https://www.cia.gov/library/publications/world-leaders-1/

The main feature of Zambia's policy process is therefore the dominance of the executive branch. This was repeatedly emphasized in stakeholder interviews. As one respondent noted, "In Zambia, presidential power is very strong so there is not much autonomy [for MAL]."[7] Another respondent observed that "When the President speaks, he doesn't take into consideration what has been agreed with [development] partners. But because it comes from the President, it has to be taken as gospel."[8]

This executive dominance is apparent in a number of ways. First, a common policy tool is the Statutory Instrument, which is classified as a form of "delegated legislation" whereby amendments, enforcements, or updates to existing laws can be made without a new act of Parliament. These effectively give the president and the cabinet significant power to change policy without having to first respond to review or questions from parliament or non-state actors (see Africa Lead 2014). Secondly, Parliament constitutionally is mandated to have a predominantly oversight function. Thus, if there are questions about input subsidies or other agricultural policies, the parliamentary agricultural committee can call the MAL minister to discuss and offer recommendations.[9] Yet, the committee has no influence on actually changing policy. In addition, MPs are typically given very little time to scrutinize the budget once it is presented in Parliament; often it is presented on Friday and parliamentarians return the following Tuesday to debate it, without though having any power to change it. Furthermore, if there are budget overruns for a sector or program, such as FSP/FISP, they are only consulted retrospectively, making the consultation a purely ceremonial process. As one MP noted: "… when MoF [Ministry of Finance] has come [to us] with supplemental budgets,

[7] Interview with USAID, Lusaka, Zambia.
[8] Anonymous interview, Lusaka, Zambia.
[9] Interview with MAL policymaker, August 25, 2015, Lusaka, Zambia.

they have already spent the money. They are just asking us to rubber stamp. MoF already came 3 times in 2015 for these supplementary budgets."[10] Another respondent noted that the MoF has to integrate presidential pronouncements into its budget planning.[11]

On paper, the policy process in the agriculture sector ideally revolves around the annual budget cycle as well as the priorities identified in the country's agricultural and development strategy. Early in the budget year, which now coincides with the calendar year, the MoF releases a circular that requests that provinces, ministries, and government agencies begin budgeting for the following year, within the confines of a given budget ceiling.[12] Certain items are always prioritized, especially salaries. However, the FISP and FRA budgeting process works slightly differently. For FISP and FRA in particular, MAL will be given a baseline for these expenses and a required number of beneficiaries to target, and MoF will instruct them not to go below this amount. This essentially prevents MAL from reducing spending for those programs. In turn, higher level politicians will have dictated to MoF what the baseline expenditures should be: "They [Min of Finance] absolutely hate FRA and they absolutely hate FISP but there is absolutely nothing they can do."[13] The finalization of the budget occurs via a confidential cabinet meeting the day before the MoF announces the budget to parliament.[14]

Outside of the budget cycle, changes to policy are shared with the Cabinet through a memo from the policy and planning department within MAL to the Cabinet's Policy Analysis and Coordination division. This is then forwarded to the relevant cabinet review committee. If the committee approves the policy and Cabinet also gives its assent, it will then be examined for legality by the Ministry of Justice.[15] However, if the policy requires a legislative act, it needs to first be approved by Parliament through a bill. After approval is given, the decision is communicated to MAL and accordingly implemented (see Chapoto 2015).

Outside of government, there are a number of other key stakeholders in the agricultural policy domain. Among farmers' organizations, the most dominant has long been the Zambia National Farmers' Union (ZNFU), which was founded in the early 1900s as a union for large-scale, commercial farmers. However, during the democratic transition era in the early 1990s, it opened its membership to smallholders. With a national reach and well-developed media network for the agri-business community, the ZNFU has the largest impact on agricultural policy decisions (see Chapoto et al. 2015). Nonetheless, the involvement of smallholders remains limited, and ZNFU is still widely perceived as predominantly representing the interests of large-scale commercial farmers. Precisely because of this perception that there was a lack of organizations representing smallholder needs, the National Union of Small Scale Farmers of Zambia (NUSSFZ) began in 2000 with a current membership of approximately 56,000 smallholders within 103 of Zambia's 108 districts.[16]

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[10] Interview with Member of Parliament, Lusaka.

11 Interview with IAPRI, Lusaka.

12 The budget year was switched to the calendar year in 2010; previously it was an April to March fiscal year. By shifting to the calendar year, expenditures must be implemented in the year in which they were planned.

13 Note also that the expenditure by the FRA is also adjusted during the maize buying period. For instance, if the target of 500,000 mt of maize is reached, there will be a political decision on extending the purchases further. This is not made by the FRA itself nor technocrats in MAL but by politicians. (Personal communication with MAL policymaker, Lusaka, Zambia.)

14 Interview with Member of Parliament, Lusaka, Zambia.

15 Interview with MAL policymaker, Lusaka.

16 Interview with the NUSSFZ, Lusaka.

Among research and advocacy, key players include the Indaba Agricultural Policy Research Institute (IAPRI), the Agricultural Consultative Forum (ACF), the Zambia Institute for Policy Analysis and Research (ZIPAR), and the Economics Association of Zambia (EAZ).

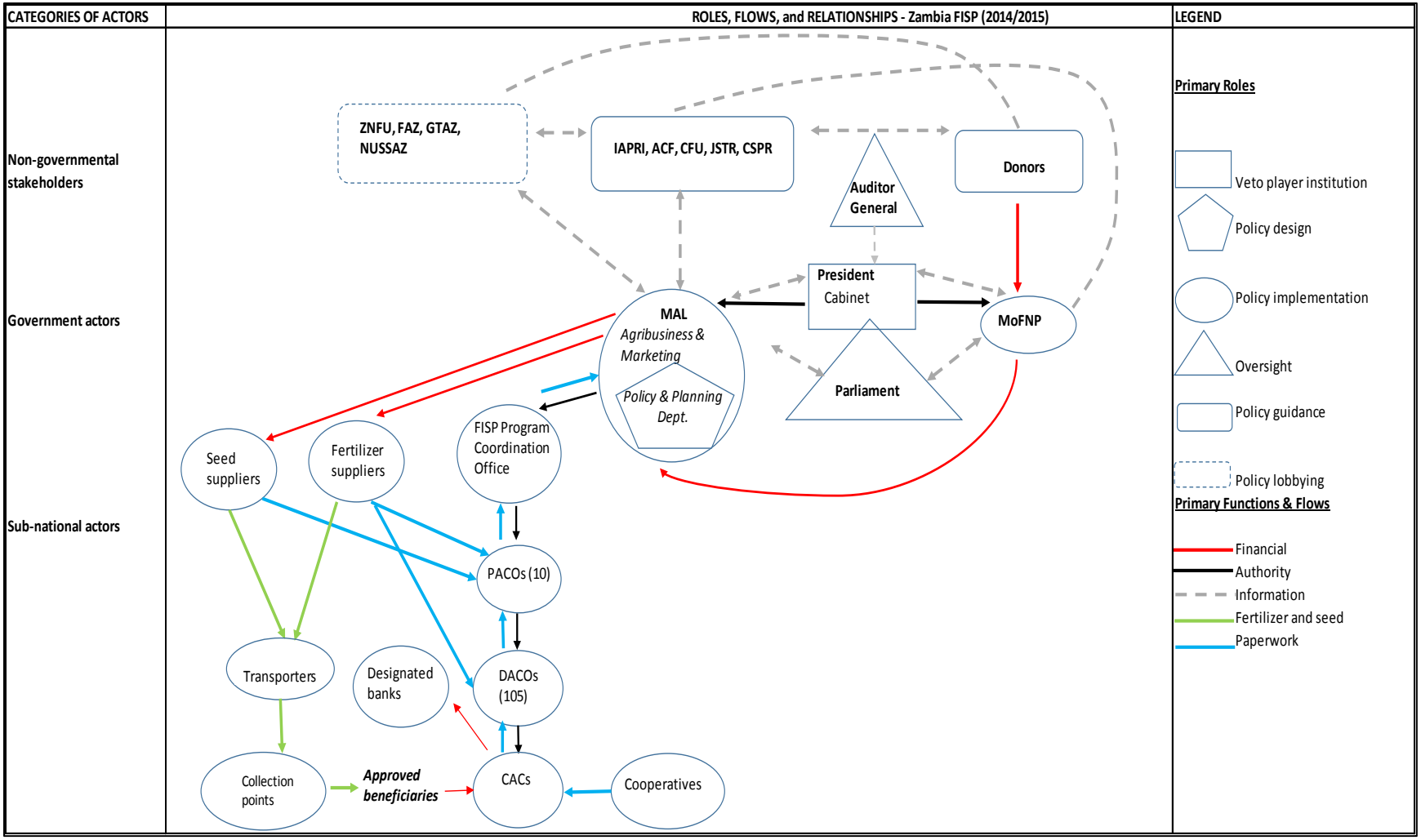
The Conservation Farming Unit (CFU), which is predominantly supported by the Norwegian Government, aims to promote conservation farming among small, medium, and large-scale farmers in Zambia and elsewhere in the Southern African region. Zambia has a vibrant civil society community that is highly vocal on issues of social justice and equality. Key among these are the Civil Society for Poverty Reduction (CSPR) and the Jesuit Center for Theological Reflection (JCTR).[17]

Within the private sector, important organizations include the Millers Association of Zambia (MAZ) and the Grain Traders Association of Zambia (GTAZ). The Zambia Fertilizers' Association (ZFA), only founded in 2010, includes members from nine major fertilizer companies in the country. These companies are Greenbelt Fertilisers, Zambian Fertilizers, Katitex, Zdenakie, Nyiombo, Omnia, Bridgeway Commodities, Nerea, and Defas Commodities.[18] Major seed companies consist of Zamseed, Seed Co., Pioneer, Panaar, Kamano, and Klein Karoo.

In the wake of the Paris Declaration and the Accra Agenda for Action, donors in Zambia, known as Cooperating Partners (CPs), worked with the GRZ to establish the Joint Assistance Strategy for Zambia (JASZ) in 2007 in order to coordinate their aid and to support the principles of Zambia's national development strategies. Within the agricultural sector, key CPs include the United Kingdom Department for International Development (DFID), the European Union (EU), the Food and Agricultural Organization (FAO), Finland, Norway, the Swedish International Development Cooperation Agency (SIDA), USAID, and the World Bank. While Zambia has had an agricultural sectoral advisory group (ASAG) since 2008 that incorporates donors and other stakeholders to interact with the government, the group meets infrequently and often without advance notice from the government (see Africa Lead 2014). The agricultural sector donor working group typically follows a "troika" system whereby the co-chairs in one year assume the chairmanship of the group the subsequent year (see Zewdie 2008). The top portion of Figure 3 illustrates the relationships and roles played by these various stakeholders in the agricultural policy process.

[17] CSPR originally was a network within the JCTR and established around the Jubilee Campaign for debt forgiveness and then subsequently developed its own mandate around poverty reduction.
[18] Interview with ZFA, Lusaka.

Figure 3—Schematic Map of Agricultural Policy Process and FISP Implementation, 2014/15



Source: Modified from FISP implementation manual, 2014/15 (see MAL 2014). Notes: The triangle for parliament overlaps with the cabinet to purposely illustrate that members of parliament are often appointed as cabinet members.

3. OVERVIEW OF AGRICULTURE IN ZAMBIA AND FSP/FISP

Although Zambia lacked an operational long-term development plan between 1991 and 2001, the Mwanawasa government drafted the Poverty Reduction Strategy Paper (PRSP) in 2002 in order to access Heavily Indebted Poor Country (HIPC) debt relief from donors. The PRSP covered the 2002-2004 period. A transitional development plan covered the 2004-2005 period before the Fifth National Development Plan (FNDP) was finalized for the 2006-2010 period. In 2011, the Sixth National Development Plan (SNDP) was launched to run until 2015 and reflect the country's Vision 2030, which aims for Zambia to be a "prosperous middle income country by 2030." After the Patriotic Front (PF) won the 2011 elections, there was a Revised Sixth National Development Plan (R-SNDP) for the 2013-2016 period to be more reflective of the PF's manifesto promises. The main aims of the R-SNDP were to moderate the emphasis on the private sector and to acknowledge that the government would play an important role in the country's economic development through public sector investments (see MoFNP 2014).

In all of these various plans and strategies, agriculture and rural development more broadly have been identified as key sectors, especially for helping the country diversify away from its historical dependence on copper mining. According to the most recent Labor Force Survey, 48 percent of the labor force is engaged in agricultural activities (CSO 2013). Moreover, despite its abundance of natural resources, poverty in Zambia has been stubbornly high, particularly in rural areas. In fact, between 2006 and 2010, the rural poverty rate moved only marginally, from 80 to 78 percent, respectively (see de la Fuente et al. 2015).[19] The 2015 Living Conditions Monitoring Survey (LCMS) revealed that 76.6 of the rural population is still under the poverty line.[20] In 2011, Zambia signed the Comprehensive African Agricultural Development Program (CAADP) compact and subsequently developed its National Agricultural Investment Plan (NAIP) for the 2014-2018 period. The NAIP is aligned with the country's broader Vision 2030 goal in the SNDP, which aspires for Zambia to be a middle-income country by 2030.

Within agriculture, maize historically has been the focal point of Zambian agriculture – the economic, political, and food security center of gravity. Maize continues to dominate today, particularly among smallholder farmers.[21] Approximately 87% of Zambia's 1.5 million smallholder households grow the crop, 63% of smallholder cultivated area nationwide is devoted to it (CSO/MAL 2014), and 60% of the calories consumed in the country come from maize (Dorosh et al. 2009). Groundnuts are the second most important crop in terms of the share of smallholders growing it (47%) and the share of cultivated area devoted to it (11%) (CSO/MAL 2014). Other important crops in the smallholder sector are cotton, mixed beans, sunflower, soybeans, sweet potato, rice, and millet.[22]

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[19] As of 2010, the poverty line in Zambia estimated by the Central Statistical Office was ZMK 146,009 (ZMW 146) per adult equivalent per month, which was approximately $1 per day in 2010.

[20] See: https://www.lusakatimes.com/2016/04/28/40-8-zambians-living-extreme-poverty/.

[21] The Zambian Ministry of Agriculture defines smallholder farmers as those cultivating less than 20 ha of land. Farmers cultivating less than 5 ha (5-20 ha) are considered small-scale (medium scale). Large-scale farmers are those cultivating 20+ ha. The vast majority of Zambian smallholders (~78%) cultivate less than 2 hectares of land (CSO/MAL/IAPRI 2012) but the number of medium-scale farmers and their share of smallholder area are rising rapidly (Jayne 2015).

[22] Among large-scale farmers, who cultivate approximately 7% of the total cropped area nationwide, the most important crop is soybeans followed by maize and wheat (CSO/MAL 2014).

Table 1—Quantities of inputs subsidized, numbers of beneficiaries, subsidy rates, and estimated program expenditures, 2002/03-2014/15

Cropping year	Number of intended beneficiaries	Quantities of subsidized inputs (MT)						Subsidy rate		Farmer contribution (ZMW) per		Total program cost (US$ million)	Total cost as % of agric. expenditures	Total cost as % of national expenditures
		Fertilizer	Maize seed	Rice seed	Sorghum seed	Cotton seed	Groundnut seed	Fertilizer	Maize seed	50 kg bag of fertilizer [a]	10 kg bag of hybrid maize seed			
2002/03	120,000	48,000	2,400	0	0	0	0	50	50	39.8	--	4.04	10.4	0.5
2003/04	150,000	60,000	3,000	0	0	0	0	50	50	48.1	--	10.56	17.2	1.1
2004/05	115,000	46,000	2,500	0	0	0	0	50	50	54.5	--	20.52	26.8	1.6
2005/06	125,000	50,000	2,500	0	0	0	0	50	50	62.6	--	31.36	26.9	1.9
2006/07	210,000	84,000	4,234	0	0	0	0	60	60	44.4	--	51.08	25.5	2.4
2007/08	125,000	50,000	2,550	0	0	0	0	60	60	56.2	--	51.10	18.0	2.2
2008/09	200,000	80,000	4,000	0	0	0	0	75	50	50	--	131.37	37.6	3.5
2009/10	500,000	100,000	5,342	0	0	0	0	75	50	50	--	111.99	42.5	3.7
2010/11	891,500	178,000	8,790	30	0	0	0	76	50	50	80	122.78	29.9	3.4
2011/12	914,670	182,454	8,985	39	0	0	0	79	53	50	80	184.21	30.1	4.4
2012/13	877,000	183,634	8,770	143	60	[a] 0	150	--	--	50	80	165.68	50.3	3.1
2013/14	900,000	188,312	9,000	159	107	[a] 0	130	50	100	100	0	113.22	30.2	1.9
2014/15	1,000,000	208,236	10,000	127	119	0	1,357	--	--	90	40	--	--	--

Sources: ZMAL (various years), ZMFNP (various years).

Notes: -- information not available. Input quantities rounded to the nearest MT. Expenditure figures for cropping year 2002/03 are for the 2002 budget year, 2003/04 are for the 2003 budget year, etc. [a] Farmer contributions for fertilizer were district-specific from 2002/03-2007/08, and pan-territorial after that. Prices reported for 2002/03-2007/08 are weighted averages based on the share of total FISP fertilizer distributed nationwide that was allocated to the district. [a] Cotton seed distributions through FISP of 286 and 156 MT, respectively, in 2012/13 and 2013/14 were planned but GRZ was not able to source sufficient seed for cotton to be included in FISP.

As seen in Table 1 above, public spending in the agricultural sector is even more skewed toward maize. For example, during the 2015 budget year, 74% of total public expenditures in the agricultural sector went to just two programs, both of which support maize production: FISP (42%) and the Food Reserve Agency (32%, FRA), a strategic grain reserve/maize marketing board (MoF 2016).[23] Between 2004 and 2013, FISP averaged 29% of total agricultural sector spending, ranging from a low of 18% in 2007 to a high of 50% in 2012. FISP and FRA are Zambia's flagship agricultural sector Poverty Reduction Programs.

Since inception, the core overall objective of FSP has been to increase private sector participation in agricultural input markets; a second overall objective to increase household food security and incomes was added in 2009/10 with the changeover to FISP. Both FSP and FISP have six specific objectives: (1) to expand markets for and increase the involvement of the private sector in the distribution of agricultural inputs; (2) "to ensure timely, effective, and adequate supply of agricultural inputs to targeted small-scale farmers"; (3) to improve small-scale farmers' access to inputs; (4) to improve the competitiveness and transparency of agricultural input supply and distribution; (5) to serve as a risk-sharing mechanism between small-scale farmers and government; and (6) to facilitate farmer organizing, knowledge dissemination, and the creation of rural institutions (MACO 2002: 2).[24] In addition to these various objectives, the program has required multiple criteria in order for farmers to participate, as shown in Table 2 below.

Despite more than a decade of heavy spending on FISP and FRA, smallholder maize yields in Zambia remain well below their potential. FISP has raised the use of inorganic fertilizer and hybrid maize seed among Zambian smallholders but by less than one kilogram per kilogram of the FISP input distributed due to crowding out of commercial demand and diversion of some of the inputs intended for the program (Mason and Jayne 2013; Mason and Ricker-Gilbert 2013). Unfortunately, late delivery of the inputs, low soil quality, and poor management practices have attenuated the impacts of FISP on maize yields and reduced the profitability of inorganic fertilizer and hybrid maize seed use at market prices (Mason et al. 2013; Burke et al. 2016; Namonje et al. 2015; Levine 2015).[25] In the soil quality dimension, many Zambian smallholders' soils are highly acidic or have low levels of soil organic matter (SOM), both of which hinder maize yield response to inorganic fertilizer (Burke et al. 2016). For example, 57% of smallholders' largest maize fields are on soils with a pH of less than 5.4, and 28% are on soils with SOM below 1.4%. Maize yields response to fertilizer is significantly lower when pH or SOM levels are below these thresholds (Burke et al. 2016).

[23] Figures based on 2015 spending from January through September.
[24] Objective 2 implicitly and objectives 3 and 5 explicitly referred to "smallholders" from 2002/03 through 2008/09, but the term was changed to "small-scale" in 2009/10 with the advent of FISP (MACO 2002, 2009).
[25] See Mason et al. (2013) for a synthesis of the empirical evidence on the targeting and impacts of FISP on maize yields and other dimensions of smallholder behavior and incomes.

Table 2—Individual farmer selection criteria for FISP, 2002/03-2014/15

Criterion	Agricultural years when the criterion was relevant (X) and changes made						
	2002/03-2008/09	2009/10	2010/11	2011/12 [b]	2012/13	2013/14	2014/15
Member of a selected, registered co-op or other farmer organization	X	X	X	X	X	X	X
Small-scale farmer [i.e., cultivate < 5 ha] actively involved in farming within the co-op coverage area	X	Camp coverage area instead of co-op coverage area[a]	" "	" "	" "	Same as 2012/13 but ***registered*** small-scale farmer …	" "
Have the capacity to grow 1-5 ha of maize	X	Have the capacity to grow at least 0.5 ha of maize [c]	" "	" "	"Have up to 5 ha of land, but should have ability to cultivate … 1 ha of land" (MAL, 2012)	"Cultivating up to a maximum of 5 ha of land" (MAL, 2013)	" "
Be able to pay the farmer contribution for the inputs	X	X	X	X	X	In cash or in-kind (2 X 50-kg bags of maize per 50-kg bag of fertilizer)	X (In-kind option dropped)
Not concurrently benefit from the Food Security Pack	X	X	X	X	X	X	X
Not be a defaulter from the FRA or any other agricultural credit program	X	X	X	X	X	X	X
Be willing to have field inspected by the Programme Coordination Office			X				

Sources: MACO/MAL (various years).

Note: " " indicates same as the previous year after a change in selection criteria. [a] From 2002/03-2008/09, individual farmer beneficiaries were selected by their cooperative/farmers' organization. Beginning in 2009/10, they were selected by Camp Agriculture Committees on the recommendation of the cooperative/farmers' organization. [b] Beginning in 2011/12, chiefs were eligible to receive subsidized inputs through FISP (one input pack in 2011/12, and two inputs packs from 2012/13-2014/15). Chiefs were to pay the same per-bag contributions as individual farmer beneficiaries. [c] This was the year the input back was reduced from 1 ha's worth of inputs to 0.5 ha; hence the change in area cultivated requirement.

4. EXPLAINING THE EMERGENCE OF THE FERTILIZER SUPPORT PROGRAM (FSP) IN 2002

Agenda Setting

Given that Zambia faces many development challenges, why did input subsidies emerge as a key agricultural policy focus in the early 2000s? In many ways, it reflected the culmination of more than two decades of experimentation with input modalities in the country centered on a *relevant policy problem*: low use of inorganic fertilizer among smallholder farmers due to the low availability of inputs at affordable prices. Like many other African countries, Zambia had an extensive system of agricultural subsidy programs in the era prior to structural adjustment that resulted in maize cultivation in unsuitable areas and distorted research away from high value exports and to low value subsistence ones instead (see Deininger and Olinto 2000). In the wake of structural adjustment reforms, currency depreciation increased the cost of importing inputs and hindered smallholder access, a fact compounded by the lack of private sector engagement in the input market driven by continued ad-hoc government interventions and the lack of an enabling environment (Kherallah et al. 2000). The government therefore pursued various credit programs, including the Agricultural Inputs Credit Program (1992-1994), Agricultural Credit Management Program (1994-1997), and the Agro-Support Program under the Food Reserve Agency (1998-2001). All of these fertilizer-on-credit programs were plagued by low loan recovery rates, making them fiscally unsustainable. By the end of the 1990s, fertilizer use on crops such as maize had deteriorated significantly relative to the pre-structural adjustment period. For instance, while total fertilizer nutrient use in Zambia averaged 83 thousand metric tons per year between 1985-1989, this declined to 51 thousand metric tons during the 1995-2000 period (Jayne et al. 2002).

Low access to inputs was therefore an enduring problem, and fertilizer credit schemes appeared to be the longstanding, albeit unsuccessful, solution. However, the devastating potential effects of these circumstances became readily apparent with the confluence of multiple *focusing events* that created a window of opportunity.[26] The most immediate was the Southern African drought crisis of 2000-2002. Crop yields from the anticipated harvest in 2000/01 were reduced by 40 percent and the production deficit continued into the following season. As of May 2001, the Zambian government declared a state of disaster, which resulted in a number of donors pledging humanitarian assistance (Philipose 2007). In their initial Poverty Reduction Strategy, the GRZ had argued that the droughts coupled with the sudden withdrawal of state support, without an adequate private sector to fill the gaps, had severely exacerbated rural poverty (see MoFNP 2004).

Zambia had faced droughts in the recent past, notably in 1992 and 1995. However, as noted in the policy chronology in Table 3 below, the 2001 crisis also coincided with the 2001 presidential campaign, and since the incumbent could not participate, the elections were much more competitive than in previous contests during the 1990s. In fact, the ruling president at the time, the Movement for Multiparty Democracy's (MMD) Frederick Chiluba, was deeply unpopular due to Zambia's economic contraction under his tenure as well as his controversial attempts to change the constitution to run for a third term in 2001. After this effort was thwarted by a strong civil society campaign, Chiluba selected Levy Mwanawasa as his successor to run on the MMD ticket in the December elections. The MMD's New Deal manifesto prioritized agricultural issues and emphasized that "MMD policy therefore aims to make agriculture the cornerstone of the economy"

[26] Interview with MAL, Lusaka.

(MMD 2001: 9). Diversifying into agriculture also became a key concern for the government since only a month before, Anglo-American had pulled out of Konkola Copper Mines (KCM) after incurring substantial losses as global copper prices continued to plummet (see Fraser and Lungu 2006; OECD 2002).[27]

Table 3—Policy Chronology of FSP/FISP by Year (Month)

Year	Political/Administrative Events	Economic Events	Research and Other Events	FSP/FISP Policy Events
2001	Levy Mwanawasa (MMD) elected with 29% of the votes (December)	Government declares disaster in wake of droughts (May) Draft PRSP is finalized (November)		
2002	Mwanawasa inaugurated as president (January)	Anglo-American announces pulling out of Konkola Mines (January) Bailout of NCZ announced (February) PRSP approved by IFIs(May) GRZ officially launches programs and activities implemented under PRSP (July)		Mwanawasa announces subsidy in his speech to parliament (February) Input subsidy announced in budget speech (March) First year of FSP launched
2003		Donors pledge $1.3 billion for 2003 & 2004 at consultative meetings (July)		
2005		Total foreign debt reduced from $7.2 billion to $0.5 billion under HIPC(March) MoU on Poverty Reduction Budget Support is signed with EU, World Bank, DfID, and Netherlands (April) Zambia one of 19 countries given 100 percent debt relief under MDRI	CSPR Report on FSP released (May)	

[27] KCM accounted for two-thirds of copper production at the time (OECD 2002). The purchase of KCM by Anglo-American in 2000 had been the last major hurdle for Zambia to qualify for HIPC debt relief.

Table 3—Continued.

Year	Political/Administrative Events	Economic Events	Research and Other Events	FSP/FISP Policy Events
2006	Mwanawasa re-elected (September)	Launch of CAADP process (November)	Govereh et al. (2006) report on the high opportunity cost of spending on FSP compared with other public investments in the agricultural sector	
2007		Joint Assistance Strategy for Zambia initiated (May)		FSP contracted suppliers suspend deliveries due to delayed payments from MACO (October)
2008	Mwanawasa dies in office (August) Rupiah Banda (MMD) wins presidential elections (October) Brian Chituwo replaces Ben Kapita as MACO minister (November)	Price of fertilizer increases by 60% due to food and fuel price crisis (April)	ZNFU release its position paper on FSP (April) MACO organizes a FSP stakeholder consultation at Kafue Gorge (April) FSP Evaluation workshop by ACF-FSRP-MACO (June) Data collection for WB FSP impact assessment begins (2008) Minde et al (2008) comparative paper on fertilizer use published (November)	MoFNP proposes that general subsidy replaces FSP; Cabinet asks MACO to respond (April)
2009			Fertilizer Study Tour of Kenya, Malawi, and Tanzania led by Food Security Research Project (February) Zoona pioneers e-vouchers Xu et al. (2009) paper on FSP crowding out private sector	Cabinet Committee of Ministers declare that FSP becomes FISP (July) Banda announces shift from FSP to FISP in Parliament (September)
2010		PRBS donors include an e-voucher as one of two criteria in the PAF indicators	Ministry of Community Development begins exploring e-voucher for EFSP	Small quantity of rice seed distributed through FISP in addition to maize inputs (August)

Table 3—Continued.

Year	Political/Administrative Events	Economic Events	Research and Other Events	FSP/FISP Policy Events
2011	Michael Sata (PF) elected president (September) Min. Chenda replaces Peter Daka as MAL Minister (November)	Signing of CAADP compact (January) Final Sixth National Development Plan (January)	Jayne et al. (2011) paper on the need for holistic strategy beyond FISP	Traditional chiefs added as beneficiaries of FISP to receive 1 pack (4 X 50kg bags of fertilizer and 10kg maize seed)
2012	Min. Chenda replaced by Min. Sichinga (March)	WB's PRSC II indicates e-vouchers as a target condition for 2012(April) Zambia issues first Eurobond for US$750 million (September)	Number of research papers indicating disappointment with FISP, including Burke et al. (2012a, 2012b) and Mason and Jayne (2012) as well as Sitko et al. (2012) on e-voucher feasibility	Sorghum and groundnuts added to FISP Traditional chiefs now get 2 packs (8 X 50kg bags of fertilizer and 20kg maize seed) Min. Sichinga announces e-voucher launch (November)
2013		Final draft of NAIP (May)	CASU launches with a Zoona e-voucher scratchcard Paper by Mofya-Mukuka et al. (2013) advocating for e-voucher to improve FISP targeting and number of articles synthesizing impacts of FISP targeting (see Mason and Jayne 2013; Mason et al. 2013; Mason and Ricker-Gilbert 213)	Min. Sichinga announces e-voucher in parliament, with a target of 241,000 beneficiaries and a value of ZMW 950 (March) Min. Sichinga tells parliament the e-voucher was not going to proceed (October)
2014	Wilbur Simuusa replaces Bob Sichinga as MAL Minister (March) Sata dies; Vice President Guy Scott becomes interim president (October)	Zambia issues 2nd Eurobond at US$ 1 billion (April) Launch of PF's Revised SNDP (October)	ZNFU launches prepaid Visa card system for procurement under its Lima Credit Scheme (August) CSOs (JCTR, Centre for Trade Policy and Development, ActionAid, Save the Children, NGO Coordinating Council, PSP Zambia, and CSO-Sun Alliance) sign proposal requesting GRZ to bring back e-voucher (September)	
2015	Edgar Lungu elected president (January) Given Lubinda replaces Simuusa as MAL minister (February)	Article IV consultation with IMF which recommends improving efficiency of FISP through e-voucher (June) Zambia launches 3rd Eurobond for US$ 1.25 billion (July)	Two stakeholder Indabas (March, May) Variety of research on FISP's weaknesses (e.g. Mason and Tembo 2015; Namonje-Kapembwa et al. 2015)	Cabinet approves e-voucher (May) Donors provide 1.6 million USD for rolling out e-voucher (June) President Lungu launches e-voucher system (October)

While the focusing events and relevant problem were necessary factors, these would not have resulted in the initiation of an input subsidy program on their own without the support of a key *advocate*, namely President Mwanawasa. Mwanawasa focused on agriculture as the foundation of the economy and the only means of diversifying away from copper (Cherry 2002). At the same time, Mwanawasa was able to show quick movement on a campaign promise to rural Zambians. Having once been an urban-based labor union party, the MMD had increasingly lost ground in urban centers over the 1990s to an array of new opposition parties. Consequently, rural voters were becoming the MMD's main constituency and the major source of Mwanawasa's support in the 2001 elections (Rakner 2003; Resnick 2014).[28] Given that Mwanawasa won only 36 percent of the vote in an election widely deemed to be marred by severe irregularities, he needed a way of quickly consolidating his legitimacy with rural smallholders (see Mason et al. forthcoming). Due to Zambia's history, particularly the socialist legacy of the UNIP regime, rural smallholders had come to expect food and input market support from the government as part of the social contract between the state and citizens (Jayne et al. 2002). After a decade of haphazard structural adjustment policies, Mwanawasa's return to an input subsidy program was a way of restoring support from this important electoral constituency.

Design

Taking the above factors into account helps explain why input subsidies emerged on Zambia's policy agenda again in the 2000s after a period of experimenting with credit programs in the 1990s. However, input subsidy programs are designed very differently across countries. What explains the key design features of the Fertilizer Support Program (FSP)?

Very little *knowledge and research* appeared to inform the design specifics of FSP. Admittedly, the GRZ had agreements with private sector companies to import and distribute fertilizer directly since 1997 while the GRZ focused on determining the amounts, destinations, and recipients (Jorgensen and Loudjeva 2005). In a review of those policies by the Agricultural Sector Investment Program (ASIP 1999), it became well known that private sector engagement in input markets were limited to Zambia's "line of rail" and relatively absent in more remote areas, particularly in Western, Luapula, Northwestern, and Northern provinces where transport costs and credit defaults were high while demand was low. But, existing government practices resulted in fertilizer going disproportionately to better-connected areas. ASIP (1999) therefore recommended that future fertilizer marketing strategies focus on addressing the gap between effective demand[29] and therefore to have a very targeted program for farmers in remote areas while ceasing the government supply of fertilizer to farmers in better-connected areas that were already being served by the private sector. The report also emphasized the need for sustainability of input demand by emphasizing the need for high credit access for smallholders and improved private sector capacity.

More generally, however, there was not a clear body of research on which the design of the program originally relied. There were some key assumptions underlying the initial design of FSP that were intended to spark behavioral change. Yet, it was not clear that an empirical body of research informed the resultant design features that would in turn result in these behavioral changes. More

[28] The MMD government's reversal of the urban bias policies that prevailed under UNIP and its embrace of targeted private goods in rural areas is typical of most new democracies in Africa where politicians recognize that most voters are still in the countryside and that there is an electoral advantage to winning their support (see Bates and Block 2013).
[29] Effective demand is demand backed by purchasing power – e.g., the level of farmers' fertilizer demand at market prices that farmers can support with their financial resources.

specifically, a key objective of FSP was that it would generate long-term, sustainable effective demand for input use among those smallholders in most need (MACO 2002). To do this, the program was designed such that suppliers and distributors, which were selected through a national tender process, would deliver inputs to designated government depots. The District Agricultural Committees (DACs) and the Program Coordination Office within the Ministry of Agriculture and Cooperatives (MACO) would select beneficiary farmers' cooperatives/organizations within agricultural camps to participate.[30] The individual farmer beneficiaries within those organizations would need to deposit 50 percent of the input costs in a participating bank while the government would deposit the remaining 50 percent (refer to Table 2). After receiving instruction from the government, the bank would then pay the input suppliers in full.

Another objective was for FSP to promote savings mobilization during the initial three years by gradually increasing the amount that the farmers' cooperatives deposited into the banks (see MACO 2002). In this way, the program would enhance sustainability of input demand over time. By requiring selected beneficiaries to be organized in cooperatives, there was an assumption that farmers might build social capital and re-generate Zambia's cooperative movement. In addition, there was a stated intention that the subsidy would improve the asset base of farmers and thereby increase demand for fertilizer from the private sector over time (see MACO 2002: 2).

In other cases, there seemed to even be a complete disregard for empirical evidence in the program design. While the program was intended to be primarily beneficial to smallholders and thereby limited to recipients growing 1-5 hectares of maize, this excluded a large share of smallholders who had less than 1 hectare of land for growing maize. Furthermore, there was no geographical targeting of the program to disproportionately favor more remote areas, thereby even discounting one of the major conclusions of the ASIP (1999) report discussed above.[31] Indeed, doing so would have probably reduced the salience of another criteria, which was that smallholders also needed to meet the 50 percent cost of inputs (see MACO 2002). This latter requirement presumably was intended to address the weakness of the 1990s credit schemes, which were characterized by high levels of farmer default. Other features of the program, including that each beneficiary would receive 8 bags of fertilizer and 20kg of maize seed (MACO 2002), also did not seem to be informed by any particular empirical evidence; indeed, this large number of bags per recipient ultimately proved to be a major source of leakage, prompting major reforms in 2009. The decision to focus the program on maize inputs only (fertilizer and hybrid seed) even appeared to contradict government decisions in the mid-1980s to remove distortions in the maize sub-sector that was encouraging production of the crop even in areas of the country that were not suitable to its production (see IMF 2002a).

Rather than empirical knowledge and research per se, *norms and biases* seemed to play an important role. Notably, FSP was designed to be a temporary measure for a few seasons, and, as noted above, for farmer contributions to increase over time.[32] In fact, the initial implementation handbook noted that the "Government has designed a *three (3) year* program earmarked to improve access of smallholder farmers to inputs, and to enhance participation and competitiveness of the private sector in the supply and distribution of agricultural inputs in timely and adequate amounts" (MACO

[30] Districts in Zambia are divided into blocks, which are further divided into agricultural camps.
[31] The number of farmers intended to be targeted under FSP in the 2002/03 season was Copperbelt (6,840), Eastern (31,200), Luapula (6,600), Lusaka (4,140), Northern (18,240), Northwestern (5,280), Southern (22,800), Central (16,680), and Western (120,000) (see MACO 2002: 13-14).
[32] Interview with Banda, Aug. 2015.

2002: 1, emphasis added). The GRZ originally planned to terminate the program by the 2005/06 planting season and the number of beneficiaries were intended to decline by 25 percent each year (see Kasanga 2008).

This sunset clause was intended to address past evidence showing that expenditures on inputs and marketing can easily overwhelm the national budget and was most likely influenced by the biases of the donor community. Zambia's heavy dependence on foreign aid in the late 1990s and early 2000s, tied closely to the collapse of the copper sector at that time, gave the donors an important role in negotiations with the government. Most significantly, after privatizing the Zambian Consolidated Copper Mines (ZCCM) in 2000, the GRZ received confirmation from the International Monetary Fund (IMF) that it would be part of the Heavily Indebted Poor Country Initiative (HIPC). By May 2002, Zambia's Poverty Reduction Strategy Paper (PRSP), a major requirement to access HIPC funds, was finalized and approved by the IMF and World Bank (Bwalya et al. 2004).

The entire discourse around the PRSPs emphasized the importance of an "enabling environment," which implied a middle-ground between the heavy state intervention that dominated in the 1970s and 1980s and the complete withdrawal of the state in the 1990s (see Ellis and Freeman 2005). A targeted and time-delimited subsidy program intended to bolster smallholder food security while increasing their savings and strengthening the private sector clearly corresponded to the donor ideal of benevolent governments fostering pro-poor growth. In fact, the language used to describe the role of the government in the FSP reflect the spirit of the enabling environment concept: "It [FSP] was justified that Government runs a *managed transition to full market liberalization* to build the capacities of both the private sector and small-scale farmers"(MACO 2008:3, emphasis added). Along with the Food Security Pack, an input grant targeted at smallholders cultivating less than one hectare of land, the FSP became one of five programs under the PRSP aimed at increasing food security and production among small-scale farmers (MoFEP 2004).[33]

In economic terms, the *cost versus the benefits* for implementing an input subsidy program were relatively low. By reaching the HIPC decision point in 2000, the country had a means of paying off $6.5 billion in external debt. Between 2001-2003, it was expected that Zambia would be able to reduce its debt servicing payments from $600 to $165 million per year (MoFEP 2002). This freed up resources for the FSP. As noted earlier, the subsidy program had clear benefits for President Mwanawasa in political terms. By deviating from the credit schemes that previously had been in place, he was able to show that while he was also MMD, he was pursuing a policy break from his unpopular predecessor, Chiluba. Finally, since input subsidy programs were a very familiar policy in Zambia's post-independence history, there was a low degree of uncertainty about how to implement the program and a presumed awareness among policymakers of the potential benefits for maize production as well as for political gain.

Adoption

Relatedly, the adoption of FSP was facilitated by the president's support for the policy. Indeed, as noted earlier, the president in Zambia is the ultimate *veto player* in the adoption of policy. Veto players are political actors with the leverage to block or push through policy and whose assent is necessary for change to occur (see Tsebelis 2002). This situation explains why, one month after

[33] The others included out-grower schemes, a rural infrastructure investment program, and an animal production and health program (MoFEP 2004).

being inaugurated president, Mwanawasa gave a speech in Parliament that announced the subsidy program. In his February 2002 speech, he argued that overreliance on maize imports had endangered the country's food security and instead, farmers required access to affordable inputs in order to reduce import dependence:

> *I am aware of the high cost of production in the agricultural sector especially with regard to diesel, electricity and fertiliser. The high cost of inputs negatively affects the sector and makes it uncompetitive in the region. Worse still the late delivery of inputs makes farming very unattractive for business. My Government is therefore working out measures with the private sector and cooperating partners to contain energy costs and improve the delivery of fertiliser and to make it more affordable. Given the recurrent droughts which we have experienced in the last two seasons and given the fact that 80% of our rural farmers are poor, my Government has decided instead of subsidising imported maize to support local farmers with cheaper fertilisers. (NAZ 2002a).*

The policy was quickly integrated into the national budget that was presented two weeks later by the Minister of Finance at the time, Emmanuel Kasonde. The budget speech announced the allocation of ZMK 231 billion ($50 million) to agriculture, which constituted a tripling of support to the sector from the previous year.[34] Minister Kasonde emphasized that the disappointing performance of agriculture in previous years was due to poor input availability and weather events. Consequently, ZMK 50 billion was allocated specifically to subsidizing fertilizer for small-scale but commercially viable farmers (MoFNP 2002). Notably, inputs were not seen as the only option for addressing food insecurity and there was also emphasis on importing more maize (MoFNP 2002).

The initial adoption of FSP was also facilitated by the lack of *powerful opponents compared with proponents*. The key actors who needed to be convinced of the program included politicians and the companies that would supply the inputs. The fertilizer companies that were involved in the initial season of FSP included Nitrogen Chemicals of Zambia (NCZ), Omnia, and Sable (MACO 2002). NCZ is a government-owned company that had been running at a loss by 2002. Coupled with the government's decision to bail out NCZ to the tune of ZMK 20 billion, the FSP gave the company a renewed mission while ensuring it a relatively stable market. According to the 2002 budget speech, this was also a strategic move to ensure continued employment for residents of Kafue where the company is based (MoFNP 2002).[35]. Omnia, a South African-based input supply company, began operations in Zambia in 1991 and had been highly involved in the 1990s' efforts to provide inputs on credit and was already well established in parts of the country.[36]

Few politicians opposed the initial program as it was marketed by Mwanawasa as having a pro-poor orientation at the time of a severe drought. In fact, in the run-up to the 2001 presidential campaign, the leader of the opposition UPND party, Anderson Mazoka, promised that if his party was elected, it would also introduce subsidies for agricultural inputs and concessions on electricity tariffs for commercial farmers (Chifuwe 2001). In addition, initiating the program right after the election implied that few parties had much political capital to gain from opposing the program. In the parliamentary debates immediately after the budget speech, MPs uniformly commended the government for its emphasis on agriculture and on inputs. The main points of criticism were that

[34] Zambia's currency (the kwacha) was referred to as ZMK through December 31, 2012. The currency was rebased on January 1, 2013, with the new currency referred to as ZMW. 1,000 ZMK=1 ZMW.
[35] By 2007, it was reported that FSP contracts were the only factor keeping NCZ afloat (Kasanga 2008).
[36] Interview with Omnia, Lusaka, Zambia.

UPND members believed the MMD had stolen the subsidy idea from their campaign manifesto and a plea that the inputs be delivered in a timely manner (see NAZ 2002b).

The electoral and budget calendars contributed to the *propitious timing* of adopting the program. In addition, given that Zambia's main agricultural season begins in October, adopting the policy in February of 2002 allowed for a realistic timeframe for implementation during the same year.[37]

Implementation[38]

The initial year of FSP aimed to provide 120,000 smallholders with 48,000 metric tons of fertilizer and 2,400 metric tons of maize seed at a subsidy rate of 50 percent. According to Jorgensen and Loudjeva (2005), this first year of FSP implementation in 2002/03 was chaotic and characterized by a great deal of confusion among farmers regarding how to participate and among the private sector, which was already distributing fertilizer on credit. Some politicians, such as Sylvia Masebo who was a member of parliament at the time for the opposition Zambia Republican Party, even publicly suggested that the initial 50 percent down payment should be abolished (see Chifuwe 2002).

More generally, the implementation of the initial few years of the FSP was dominated by a few key characteristics: an increase rather than a decrease in the number of beneficiaries, poor targeting, late deliveries of inputs, and insubstantial evidence of improved agricultural productivity. More specifically, while FSP began in the 2002/3 agricultural season by targeting 120,000 smallholders with the government subsidizing 50 percent of the inputs, it had risen to targeting 200,000 smallholders with a 75 percent government subsidy rate by the 2008/09 season before the program transitioned to FISP (see Table 1).

As highlighted by the KM in Figure 1, a number of relevant and interconnected variables accounted for these dynamics. First, with respect to having the *requisite budget*, donors committed $1.2 billion from 2002- 2004 to support implementation of the PRSP, which accorded "highest priority" to agriculture as the sector that could best facilitate economic diversification, employment, exports, and food security (IMF 2002b). At the end of 2005, the IMF then listed Zambia among 19 countries to receive 100 percent debt relief under the Multilateral Debt Relief Initiative (IMF 2005). Between 2001-2006, the agricultural ministry allocated 48 percent of its budget to PRSP/HIPC programs, which included FSP and the FRA (Govereh et al. 2006).

Participation in the PRSP process also facilitated Zambia's eligibility for general budget support, which consists of unearmarked funding to the national treasury. Budget support began in 2002 from the EU. Then in April 2005, Zambia signed an MoU for Poverty Reduction Budget Support with the EU, the World Bank, DFID, and the Netherlands.[39] These and other donors agreed to a Joint Assistance Strategy for Zambia (JASZ) based around the Principles (ownership, alignment, harmonization, results, and mutual accountability), and they subsequently prioritized funding for the target areas identified in the government's Fifth National Development Plan (FNDP) that was released in late 2006. The FNDP institutionalized the subsidy program by suggesting FSP continue until 2008 (see MoFNP 2006).

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[37] Maize is typically planted in November-December in most parts of Zambia.
[38] For very detailed information on the implementation of FSP/FISP, please see Wanzala-Mbolela et al. (2013) and FSP/FISP program implementation manuals (MACO various years).
[39] The PRBS donors subsequently expanded to include the African Development Bank, Finland, Germany, Norway, and Sweden.

Wanzala et al. (2013: 62) and Jayne and Rashid (2013) note that the transition from conditional agreements to direct budget support was indeed one of the major factors driving the continuation of the program and the resurgence of input subsidy programs throughout SSA. De Kemp et al. (2010) further note that agricultural sector expenditure in Zambia in particular increased rapidly between 2005-2009, and the expenditure growth was much higher for FSP and FRA than for MACO's core functions (40 percent versus 25 percent expenditure growth). While counterfactuals are difficult, De Kemp et al. (2010) note that while so much funding was allocated to FSP, allocations for capital expenditure in the agricultural sector since 2002 barely changed. This suggests that budget support was not being evenly distributed across MACO but rather targeted at bolstering key programs.

Institutional capacity hindered FSP from meeting its objectives. As noted in Resnick et al. (2015), such capacity consists of not only the ability of the bureaucracy to oversee policy implementation but also administrative coordination across all entities involved in implementation. For FSP, failures in inter-ministerial coordination led to a lack of accountability within the program. For instance, in the initial 2002/2003 season of FSP, inputs were either distributed late or not at all to some locales. MACO and a number of NGOs monitoring the program blamed the delay on the late release of funds from the MoFNP, which did not occur until October 2002 (see Jorgensen and Loudjeva 2005). Starting in the 2006/07 farming season, these types of delayed payments became more protracted. In fact, in the 2007/08 season, both MACO and MoFNP blamed the other for failure to pay the contracted fertilizer companies with MoFNP claiming it had released in time to MACO the money earmarked for FSP (Kasanga 2008).

This type of finger pointing had implications for the main *implementation veto players* of the program, namely the fertilizer suppliers, but only in some years of the program. For instance, by the end of 2007, the GRZ owed the contracted private fertilizer companies about ZMK 30 billion (Kasanga 2008).This was problematic since these companies had to organize financing from commercial banks in advance to meet their FSP contract arrangements. In response, the companies that won the distribution bid that year, Ominia and Nyiombo Investments Limited, suspended the release of fertilizer stored in their depots for that agricultural season (see Musonda 2008).

One of the major implementation challenges was the constrained capacity of the parastatal, NCZ, which initially was contracted to provide only a fraction of the D-compound fertilizer part of the FSP beneficiary pack. Yet, starting in the 2004/05 agricultural season, NCZ was contracted to provide all of the D-compound under the program as a way of supporting the company. Yet, it created major delays in the program (MACO 2008). In addition, at the sub-national level, relying on District Agricultural Committees (DAC) was problematic since they had been only created in the mid-1990s and were weak and underfunded, resulting in uneven ability to identify and monitor beneficiaries (MACO 2008). Perhaps more problematic was that at the local level, district agricultural extension agents were given responsibility for implementing the program. This diverted their time away from actual extension work, which made Zambia's already insufficient extension services even more overstretched (see Wanzala-Mbolela et al. 2013).

The program initially retained the commitment of key *policy champions*, notably the ruling MMD party and President Mwanawasa, who was up for re-election in September 2006. Compared with the 2001 elections, he won with a large plurality in 2006 with his support predominantly concentrated in the countryside.[40] During the 2006/07 agricultural season, the number of beneficiaries increased by

[40] He obtained particularly large vote margins in the more rural provinces, especially Western, Northwestern, Eastern

almost 70 percent and the subsidy rate was increased from 50 to 60 percent rather than being decreased as originally intended (see Table 1). While donors subsequently voiced concern about expenditures on the program in 2007 and 2008 (see IMF 2007), this was quelled during the 2008 food crisis when the donor community generally became more accommodating of subsidy programs globally given the high cost of imported fertilizer. Indeed, when the price of fertilizer increased by more than 60 percent in mid-2008, MACO sought an additional US$ 68 million from MoFNP and donors to cover the costs of the program (see Chapoto 2015). As seen in Table 1, the cost of the program more than doubled that year from US$ 51 to 131 million.

Evaluation and Reform

The food and fertilizer crisis of 2008 undoubtedly created *changing material conditions* for the government in two regards. On the one hand, it made the cost of fertilizer much higher. On the other hand, as the cost of maize increased, there were concerns about ensuring high levels of production, preventing food insecurity, protecting smallholder incomes, and avoiding the need for maize imports.

At the same time, by 2008, there was a mounting body of *information and beliefs* regarding inefficiencies in the FSP during its first six years. These came from various sources. A major source included the media, which provided many stories of corruption, late delivery of inputs, politicization and expense of the program (e.g. Chansa 2008; Lungu 2008; Zulu 2008). One included the independent Auditor General's office, which continually reported that expenditures for the program could not be reconciled due to a lack of records and underutilized inputs at the end of the season because they were either delivered late, not delivered to the correct beneficiaries, there was a mismatch between seed and fertilizer inputs, that certain suppliers had been overpaid without explanation, and that many bags had been issued without supporting bank slips. More than ZMK 26 billion could not be accounted for in the program in 2006 while ZMK 11 million went missing in 2008 (OAG 2006, 2009).

At the same time, as seen in the policy chronology in Table 3, a number of stakeholders disseminated research reports assessing the FSP. For instance, the ZNFU and CFU jointly released a position paper on FSP in mid-2008. Among other issues, they expressed concern over the lack of clarity in selecting beneficiaries, the creation of dependency of smallholders on subsidies, the amount of time that administrative staff from the Ministry were allocating to FSP and away from their other responsibilities, and late delivery of inputs for which farmers had already made advance payments (see Kasanga 2008). In addition, they observed that maize producing regions were being disproportionately favored by the scheme and concluded that "FSP has become an important source of obtaining/extending political patronage and economic rents" (Kasanga 2008: 17). The paper recommended that FSP expand beyond maize to target crops appropriate for each region's agro-ecological conditions and focus on helping smallholders commercialize their production by focusing more on fertilizer and herbicides rather than seeds. A similar sentiment was advanced by vocal politicians from the opposition at the time, the Patriotic Front (PF). For instance, MP (and later Vice President) Guy Scott noted:

> *That crop [maize] brought down Kaunda's economy, his Government, his Treasury and his Exchequer because every year it gobbled more and more as people tried to meet the gaps between the expenditure and*

provinces.

revenue, between the price to the consumer and the price to the producer…I think, we need to let maize have its place, but let us not measure the success of the agricultural policy by whether the maize crop is up or down. Let us have some genuine attempts at diversification (NAZ 2007).

At the same time, research uncovered mixed success of the program. Based on Zambia's Crop Forecast Surveys, wealthier households with larger landholdings received more subsidized fertilizer than those that did not (Minde et al. 2008; Mason and Jayne 2013). Several studies subsequently demonstrated empirically that because many FSP beneficiaries were those that could afford to purchase fertilizer at commercial (unsubsidized) prices, FSP "crowded out" commercial demand for fertilizer – the result being that each additional MT of FSP fertilizer distributed increased total fertilizer use by less than 1 MT (Xu et al. 2009; Mason and Jayne 2013). While FSP did raise yields, the effects were less than anticipated due to this crowding out and chronic late delivery of FSP inputs to farmers (Mason et al. 2013).However, among those smallholders who did receive the subsidy, fertilizer use was found to have increased by 12.5 percent during the initial six years of the program. Smallholders with landholdings less than 5 ha were also found to have higher yield increases per ton of fertilizer use than smallholders with larger landholdings (Minde et al. 2008).

Some of these and other findings were considered during a series of stakeholder workshops in mid-2008 initiated after MoFNP suggested that, due to its high costs, FSP be scrapped in favor a general fertilizer subsidy to benefit farmers nationwide. Cabinet subsequently instructed MACO to draft a plan for a broader subsidy, and MACO responded that it needed to obtain feedback from stakeholders in order to reform the program (see MACO 2008). Thus, in April 2008, there was a first stakeholder workshop assessing the strengths and weaknesses of the program. Since FSP was never designed with a rigorous monitoring and evaluation system, this workshop became one of the first systematic attempts to analyze the program. In June 2008, another FSP evaluation workshop was held, jointly organized by Michigan State University's Food Security Research Project (FSRP), ACF, and MACO (see Weber 2008). Soon thereafter, the Government commissioned the World Bank to study whether FSP represented value for money and how it could be improved (see World Bank 2010). This was followed up with an FSRP-organized a study tour for ZNFU, CFU, ACF, and government officials from MACO and MoFNP to Kenya, Malawi, and Tanzania to understand their subsidy programs. In fact, the government had actually commissioned the multi-country study tour in order to generate insights regarding how to address FSP's weaknesses. A key insight from that study tour was that all of these other countries distributed two bags of fertilizer rather than the eight in Zambia.

The combination of changing material circumstances with information on the program's effectiveness coincided with a major *institutional shift* for the country, which was the death in August 2008 of Mwanawasa, the architect of FSP. Two months later, his Vice-President, Rupiah Banda, was elected president and the MACO minister changed in the ensuing cabinet re-shuffle. This shift created the opportunity to revisit the design of the program and address major concerns voiced by the research reports, media, donor community, civil society, and opposition parties. The main point of reform was decreasing the number of bags to reduce leakage and program costs while also reducing the minimum landholding size required for eligibility so that wealthier farmers did not benefit as much. Yet, reducing the quantity of the subsidized inputs per beneficiary posed a political risk for a party that depended almost exclusively on rural voters. Convincing the president required selling the reform from a political angle, which involved emphasizing that if the number of bags per beneficiary were reduced, the number of beneficiaries could be doubled without increasing the total

amount of fertilizer distributed through the program. As one stakeholder intensely involved in the reform stated, "Policy for agriculture inputs is politically motivated. We needed to guide him [Banda] from a political angle."[41]

By July 2009, the cabinet committee charged with reviewing the FSP agreed that the program should be reformed and renamed the Farmer Input Support Program (FISP) from the 2009/10 season onwards. The new name was intended to reflect that the program had a broader objective to diversify away from being solely a fertilizer and maize program to include other inputs and crops. Two months later, President Banda announced the reform to Parliament.

Some of the major concerns of various stakeholders were reflected in FISP for the 2009/10 season. Specifically, beneficiaries had to have the capability to farm 0.5 hectares, rather than 1 hectare.)[42] Input packs were reduced to 4 bags of fertilizer (though not the two bags seen in other countries) and 10kg of maize seed. Coupled with an increase in the total FISP fertilizer distributed to 100,000 MT in 2009/10 (from 80,000 MT in 2008/09), the number of beneficiaries consequently more than doubled from 200,000 in 2008/09 to 500,000 in 2009/10 (see Table 1). In subsequent years, rice, sorghum, and groundnut seeds were added in an effort diversify away from maize; however, the quantities of these seeds (and number of beneficiaries receiving them) were very small and thus this change was more symbolic than substantive.[43] As noted in Table 2, another change under FISP was that starting in 2009/10, farmer beneficiaries were selected by Camp Agricultural Committees (CACs), rather than by the cooperatives/farmer organizations of which they were members.[44] The CACs would however make their selection based on the recommendation of the farmer cooperatives or organizations. Another major change in the administration of the program was that a national steering committee was created encompassing MACO, MoFNP, Ministry of Community Development and Social Services, Bank of Zambia, ACF, associations representing seed, fertilizer, and agro-chemicals, and farmers' organizations.

A major institutional shift was a change in the annual budget calendar in the first year of implementing FISP (i.e. 2009/10) to follow the calendar year rather than April to March. This ensured greater coherence between the planning and expenditure on FISP and other programs. In particular, it allowed the tendering process to occur much earlier in the year and therefore increased the likelihood that FISP inputs would be delivered to farmers before planting time.[45]

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[41] Anonymous interview, Lusaka, Zambia.

[42] In the following year (an election year), and every year since, traditional authorities were included as beneficiaries, even if they do not farm. In fact, from 2011/2012 onwards, chiefs could receive 8 bags of fertilizer. From an economic standpoint, it is not clear why chiefs are beneficiaries, while clearly understanding from a political perspective.

[43] Cotton was also included in the FISP implementation manual for two years (2012/13 and 2013/14) but was never actually included because of the difficulty of procuring cotton seed and concerns from private sector cotton ginners involved in contract farming with smallholders that including cotton seed would exacerbate the practice of 'side selling' (i.e., when farmers provided inputs on credit sold their cotton to a different buyer than the creditor, and defaulted on their loans).

[44] CACs currently consist of cooperation/farmers organization from each zone, traditional establishment in the camp, the church, community based organizations, non-MAL public offices (e.g. health, education, community development), a MAL extension officer who serves as executive secretary.

[45] Interviews with MAL, Lusaka, Zambia.

5. FISP AND E-VOUCHERS IN ZAMBIA: A ROCKY ROAD TO REFORM

Overview

As early as 2008, the use of an electronic voucher, or e-voucher, had been discussed among agricultural policy stakeholders in Zambia as a way to reduce the costs and increase the transparency of FISP. In fact, it was one of the main recommendations out of the April 2008 stakeholders' evaluation workshop of FSP (see MACO 2008: 16). The system was almost adopted in the 2013/2014 agricultural season but then stalled until 2015. At that point, a pilot e-voucher program was implemented to target 241,000 smallholder farmers in 13 districts spanning four provinces (Central, Copperbelt, Lusaka, and Southern) where mobile phone infrastructure and agro-dealer networks were most developed.[46] The e-voucher system involves the distribution of a pre-paid Visa chip card pre-loaded with a set value of Zambian kwacha (ZMW 1700 in 2015/16) to eligible farmers who make a personal contribution (e.g. ZMW 420 in 2015/16) before their cards are activated. Beneficiaries can use the cards to purchase not only fertilizer and seed for the crops of their choice but also herbicide, insecticide, fungicide, livestock feed, and veterinary drugs (MAL 2015).[47]

The e-voucher also implies some other fundamental changes. First, the government is no longer involved in transport, storage, and distribution of inputs since farmers go directly to agro-dealers. Therefore, the administrative costs of the subsidy can be reduced (see ACF/IAPRI 2012). Secondly, it encourages crop and broader agricultural in contrast to the standard FISP program that was typically targeted solely to maize production. Thirdly, a much broader array of input companies are participating, which is intended to reduce the politicization and opacity that has typically been associated with the contract tender process that favors three or four big companies.[48] Fourthly, the program is intended to reduce leakage by requiring farmers to show their National Registration Cards (NRCs), which include their names and pictures, upon physically picking up their pre-paid cards from a registered farmers' organization and also when they purchase from an agro-dealer.[49] Upon registering in the system, the coordinates of the farmer's land plot are verified to ensure that the recipient is indeed a farmer and that s/he is cultivating 0.5 to 2 hectares of land.[50] Finally, the e-voucher is intended to improve the timeliness of input distribution because farmers can purchase wherever there is availability rather than waiting on the arrival of inputs from designated suppliers.

Agenda Setting

Due to the potential benefits elaborated above, many countries that have an input subsidy program have been considering or are actually transitioning to an e-voucher program, such as Malawi (2013) and Nigeria (2012). In Zambia, the e-voucher modality has been on the policy agenda for a long

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[46] The districts were Chibombo, Chikankata, Chisamba, Choma, Chongwe, Kalomo, Kabwe, Kapiri Mposhi, Monze, Mazabuka, Mumbwa, Ndola, and Pemba.

[47] In the initial pilot year, two main banks were supporting the Visa platform, Banc ABC and Zanaco. As noted later, the United Bank for Africa (UBA) also became involved.

[48] The bidding process is very opaque and subject to accusations of corruption. For instance, Nyimbo and Omnia had been fined $20 million in 2013 for bid rigging after a raid by the Competition and Consumer Protection Commission in 2012.

[49] Interview with Zambia National Farmers' Union (ZNFU), Lusaka, Zambia, August 2015.

[50] In addition to this criteria, a beneficiary's name must be recorded in the camp farmer register and the farmer must have the capacity to pay the stipulated farmer contribution. If applicable, the beneficiary cannot be raising more than 10 cattle, 30 pigs, 30 goats, 100 chickens, or overseeing more than 2 fish ponds (see MAL 2015).

time. Specifically, the push for an e-voucher was stimulated by successive evaluations in the media, government organizations, research institutes, civil society, and donors of the inadequacies of the FISP in its existing form. As already noted, the relevant problems associated with FISP included corruption, poor targeting, leakage to non-beneficiaries, failure to improve private sector engagement, failure to reduce dependence on subsidies by smallholders over time, and persistence of late deliveries well after the start of the farming season (e.g. Kasanga 2008; Mofya-Mukuka et al. 2013). Moreover, there was a high level of spending on the program, which varied from 10 percent of total agricultural sector spending in 2002 to 43 percent by 2009 (Mason et al. 2013). This level of spending was widely believed to have stifled a more diverse range of investments in agricultural extension and in research and development, areas that the Government had itself prioritized over subsidies in its Fifth National Development Plan (see World Bank 2010). In the 2007/08 year, the World Bank estimated that approximately 20 percent of FISP's inputs were wasted (see World Bank 2011). In many respects then, the insufficient design of FSP and FISP was a *relevant problem* that required either a complete overhaul of the program or substantial refinements.

The *focusing event* occurred in 2009 due to a shift in technological availability, namely the pioneering of e-vouchers in Zambia by a local start-up company known as Zoona, formerly known as Mobile Transactions Zambia (MTZL). In 2009, CARE invested $100,000 in Zoona to develop an e-voucher program that would improve asset targeting for rural smallholders (CARE 2009). The company transformed into a third-party provider of mobile payments through e-voucher scratch cards and began working with a variety of partners to use e-vouchers to purchase a variety of subsidized goods and services, including anti-diarrheal kits and conditional cash transfers (Aagaard 2013; Stratham et al. 2012).

A *powerful advocacy coalition* began coalescing around using a voucher system in 2009. These advocates included key research organizations (Food Security Research Project, subsequently the Indaba Agricultural Policy Research Institute, IAPRI), various farming associations and advocacy groups (Zambian National Farmers' Union, ZNFU; Conservation Farming Unit, CFU: Agricultural Consultative Forum, ACF), and the donor community, especially those who were Cooperating Partners (CPs) supporting the Joint Assistance Strategy for Zambia (JASZ).[51] As noted earlier, FSRP-IAPRI had also organized a study tour that year for ZNFU, CFU, ACF, and government officials from MACO and MoFNP to Kenya, Malawi, and Tanzania to understand their subsidy programs. In fact, the government had actually commissioned the study in order to generate insights regarding how to address FISP's weaknesses (see Sitko et al. 2012). The conclusion from that tour was that an e-voucher-based inputs supply system should be pursued (FSRP 2009). In 2010, the CPs involved in providing poverty reduction budget support (PRBS) assistance included transitioning to a voucher-based input subsidy as one of two performance criteria in the Performance Assistance Framework (PAF), which the government, however, never met (see de Kemp et al. 2011).

In late 2011, the ruling party, the Movement for Multiparty Democracy, was ousted by the opposition Patriotic Front (PF). This resulted in MACO being restructured and renamed as the Ministry of Agriculture and Livestock (MAL) but the PF was just as committed to FISP.[52] The PRBS donors again included a voucher pilot scheme as a target indicator in 2012 (World Bank

[51] The JASZ donors encompassed 12 bilaterals along with the IMF, the World Bank, the European Commission, and the United Nations.

[52] The leader of the PF, Michael Sata, had claimed during his 2011 presidential campaign that he would introduce a fertilizer subsidy for everyone.

2012). Informant interviews revealed that the donor role was not inconsequential. For instance, a deputy MAL official noted that, "All the CPs think the e-voucher is the way to go and we've seen them [the CPs] driving that."[53] Likewise, a stakeholder from USAID confided that "USAID has been pushing for reform of FISP and for it to be done through the private sector rather than having the government procure it. We've also been pushing for an e-voucher in order to improve the diversification of crops."[54]

Design (Round 1)

Even if there was a growing convergence on the need for e-vouchers to be incorporated into FISP, there was much less agreement on how exactly they should be designed. There was a variety of options based on existing efforts in the development community in Zambia. For instance, between 2009 and 2012, the European Union, Norway, and the FAO supported the Farmer Input Support Response Initiative to Rising Prices (FISRI) of Agricultural Commodities in Zambia in conjunction with the CFU. As part of FISRI, Zoona was used to develop an e-voucher platform as a way of remunerating the lead farmers involved in providing conservation farming training services. Farmers who registered with the project received pre-paid mobile phone scratchcard vouchers to be used at agro-dealers (Sibanda 2010). In 2013, the successor program, known as the Conservation Agricultural Scaling Up (CASU) program, aimed to train 21,000 lead farmers and approximately 300,000 follower farmers.[55]

Moreover, in 2010, the Ministry of Community Development, Mother and Child Health (MCDMCH) began exploring e-voucher scratch cards through Zoona for the Expanded Food Security Pack (EFSP) program that it oversees (see Kasanga et al. 2010).[56] By mid-2012, the EFSP e-voucher was launched through a pilot in four districts and financed by the Norwegian Embassy. It was subsequently scaled up in following years to target 12 districts and between 60,000 to 90,000 beneficiaries. Presentations of the program and how the voucher worked were given on multiple occasions to MAL, including to the MAL minister from February 2013 until March 2014, Robert Sichinga, as well as to the agricultural sector donor working group.[57]

A key research report in 2012 by Sitko et al. (2012) analyzed the feasibility of an e-voucher system based on learning from the FAO and CFU initiatives. The authors suggested that MAL distribute a voucher scratch card to selected FISP beneficiaries that would entitle them to a set range of inputs and tools at designated agro-dealer outlets. After an agro-dealer enters the farmer's scratch card number and the beneficiary's National Registration Card (NRC) number on their mobile phone, the dealer would be instantly paid via their online account.[58] The report was well-informed by interviews with MAL, fertilizer importers, and agro-dealers and therefore had a high degree of credibility. The authors concluded that a phased introduction of an e-voucher, based on a pilot approach, would be feasible and address many shortcomings in FISP.

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[53] Interview with MAL, August 2015, Lusaka, Zambia.
[54] Interview with USAID, August 2015, Lusaka, Zambia.
[55] Interview with the FAO, August 25, 2015, Lusaka, Zambia.
[56] The EFSP provides inputs and helps teach improved agricultural practices to "vulnerable but viable small scale farmers," who consist of those who cultivate less than 1 hectare of land and belong to any of the following categories: female/child-headed household, disabled, aged, victims of natural disasters, unemployed youths, households headed by terminally ill-patients, and institutions look after orphans.
[57] Interview with Norwegian Embassy, August 26, 2015, Lusaka, Zambia.
[58] All Zambian citizens must acquire an NRC at the age of 16. It is a prerequisite for voter registration and a general form of identification.

In late 2012, the MAL Minister at the time, Emmanuel Chenda, announced that an e-voucher system would be launched the following year in order to rectify many of the problems with the existing system. In specifying how it would work, the Ministry noted that it would rely on an electronic scratchcard and that the piloting would proceed in 10 districts (NAZ 2012).[59] This commitment was maintained despite the change in MAL ministers in February 2013. A month later, the new MAL minister, Robert Sichinga, assured Parliament that the e-voucher would be launched in October 2013 in time for the 2013/2014 agricultural season. In terms of the e-voucher design, he noted that beneficiaries would be expected to contribute ZMW 190 (US$ 35.8) to the purchase of inputs, which was relatively low and reflected that farmers needed to be able to finance their transport costs from the agro-dealers to their farms (NAZ 2013).[60] In June 2013, MAL launched an advertisement soliciting IT companies to tender for developing the e-voucher software. Importantly, June was already quite late for this tendering given Sichinga's plans to launch the program in October, which is when farmers should ideally receive inputs in order to prepare for the agricultural season.

The e-voucher was a radical departure from the status quo of how FISP had operated for more than a decade. As such, there were many unanswered questions about how the program would function. The head of the Parliamentary Agricultural Committee at the time, Hon. Request Muntanga of the United Party for National Development (UPND) believed that there was insufficient technological infrastructure in rural areas for the program to work.[61] Other MPs questioned whether agro-dealers would have sufficient fertilizer stock (see NAZ 2013). Still others were concerned that the instant payment of agro-dealers required the Government to have all the money upfront in the bank, which seemed unrealistic given that many past delays in FISP had been tied to insufficient financing released from MoFNP to MAL.[62]

Notably, by October 2013, there was an abrupt reversal on the e-voucher. Minister Sichinga announced to Parliament that the e-voucher would not be preceding for the 2013/2014 agricultural season. In the 2014 budget speech, given later that month, there was no mention of the e-voucher for FISP. When responding to media inquiries, Sichinga announced that "I have a computer background and when I looked at what had been prepared, I was not satisfied that we had a register of the 241,000 farmers; I was not satisfied that each of the targeted districts had telephone communication to send messages. I was also not satisfied that there was sufficient capacity to reach all the 241,000 farmers and because of this, it was not possible to implement the e-voucher system because even the ministry did not even have computers," (cited in Mwale 2013). Furthermore, many informants pointed to the costs for key MAL officers, particularly the former director of the Department of Agribusiness that oversees the program, of losing patronage benefits as a result of a more streamlined and transparent system.[63] More broadly, in a country where government and business actors often overlap, and in a supply chain that can be a US$ 300 million business, many stood to lose from less government involvement in the e-voucher system.[64] Coupled with this was a

[59] All exchange rate conversations are based on the corresponding year for the cited data based on World Development Indicators.
[60] The ZMW-US$ conversion is based on exchange rates from the Bank of Zambia and based here on the first day of the October 2013.
[61] Interview with IAPRI, August 24, 2015.
[62] Interview with MAL, August 24, 2015, Lusaka, Zambia.
[63] This was an oft-repeated view in interviews, including with FAO, IAPRI, MAL, Ministry of Norway, and USAID.
[64] Interview with FAO, August 25, 2015, Lusaka, Zambia.

concern about how the possibility of implementation failure might affect broader food security in the country (Chisanga 2013).

In essence then, the e-voucher stalled at the design stage, predominantly because there seemed to be a number of perceived technical challenges and financial losses to powerful actors. Even with strong research demonstrating the many benefits of an e-voucher, there were clear uncertainties about how it could be effectively implemented. In addition, many of the existing programs that depended on the e-voucher, including CASU and EFSP, had only had a short-term experience with their programs and targeted a much smaller number of beneficiaries and districts than MAL intended through FISP.

Design (Round 2)

The traditional FISP program proceeded for the 2014/2015 agricultural season without an e-voucher, with a target of one million beneficiaries (see MAL 2014). However, the e-voucher remained strongly on the policy agenda for FISP. A group of civil society organizations publicly signed a proposal in September 2014 requesting the government to re-consider the e-voucher (see Mbale 2014). Then, during the 2015 budget speech given at the end of 2014, Finance Minister, Alexander Chikwanda, noted that K255 million (US$ 40 million) had been allocated to the e-voucher for the 2015/2016 season (see MoFNP 2015).[65] The Zambian kwacha depreciated significantly against the US dollar in 2015, resulting in being considered the world's worst performing currency, and this made the cost of imports, including fertilizer imports, more expensive. Hence, there was a financial impetus to find other ways of cost-saving for the FISP program.

In the interim, the ZNFU had launched in August 2014 the use of a pre-paid Visa card platform system for its Lima Credit Scheme during the 2014/15 agricultural season. The Lima scheme, which began in 2008, aims to improve the financial inclusion of farmers by providing a credit guarantee covering 50 percent of the cost of crop inputs to initially cover between 1 and 5 hectares (FAO 2011). A number of design benefits accompanied the use of the pre-paid cards. For instance, the card could incorporate different "wallets" for inputs, tools, livestock feed, herbicides, etc., which helps create an audit trail.[66] Instead of a scratch card that relies on mobile phones, the Visa card relies more on point of sale machines that are made available to agro-dealers. The Visa card platform also provided the option for coordination on a variety of government programs such that the social cash transfer program and other social welfare programs could all function via a beneficiary's card.[67]

In many ways, the Visa card option looked like a promising way of bringing farmers into the financial sphere and providing a springboard for coordination with other government programs. Moreover, the shift to e-vouchers was consistent with a belief that subsidies were not just a safety net for smallholder farmers but that they could be "catalytic" via linkages with the banking sector and by drawing in the private sector.[68] Compared with the scratch card system, the Visa approach also seemed more scalable because the two initial participating banks, Banc ABC and Zanaco, are quite large and could compete to provide point of sale machines.[69] Indeed, with point of sale

[65] The ZMW/US$ exchange rate is from the Bank of Zambia for the end of 2014.
[66] Interview with ZNFU, August 28, 2015, Lusaka, Zambia.
[67] Interview with MoFNP, August 28, 2015, Lusaka, Zambia.
[68] Interview with ZNFU, August 28, 2015, Lusaka, Zambia.
[69] Interview with the Grain Traders Association of Zambia, August 26, 2015, Lusaka, Zambia.

machines, the banks earn money every time the Visa card is swiped so they have incentive to distribute as many machines as possible.

The design of the e-voucher also benefited from findings provided by other ongoing schemes. For instance, the CASU program restricted farmers to purchasing inputs from within their own district, which is problematic if there are differential supplies among agro-dealers across districts; it also stifles competition among agrodealers for farmers' business. Consequently, MAL decided that for FISP, it would not tie a beneficiary to purchasing within a particular district.[70] In addition, in the CASU program, farmers could only use their pin number once to buy inputs, even if the full range of inputs to which they are entitled were not in stock.[71] By contrast, the FISP e-voucher was designed so that the Visa cards could be swiped multiple times until the balance was exhausted.[72]

ZNFU had discussed their model with technocrats in MAL and were then approached by MAL Minister Given Lubinda, who had been appointed in February 2015 after President Lungu's election, to provide more details.[73] With a background in agricultural economics, Lubinda was perceived by many stakeholders as very receptive to engaging with the research and policy communities on improving FISP. To this end, he requested ACF and IAPRI to co-host an Indaba, or large consultation, in March 2015 with more than 150 invitees from government, private sector, farmers' organizations, and donors. At that time, a presentation by MAL noted that the Permanent Secretary had already given his authority for MAL to work with the ZNFU on using the Visa platform to create the e-voucher (Mate 2015).

By having additional time to review the progress with existing e-voucher modalities, as well as witnessing the initial pilot roll-out of the ZNFU Visa model, the balance of costs and benefits in implementation became clearer. In addition, officials at MAL who previously had been materially benefiting from the status quo eventually left in 2014, which therefore removed an additional barrier for change.[74] In other words, the benefits of an e-voucher, in terms of improved transparency and reduced resource outlays, increasingly outweighed the costs. In addition, as more time passed and other organizations experimented with different modalities, more lessons became apparent regarding what design features and considerations could have the greatest impact.

Adoption

On May 12th, 2015, the Zambian Cabinet approved MAL's proposal to contract with ZNFU to launch a pilot of the e-voucher based on the Visa platform. As noted earlier, the main *veto player* is the president. Since improving the targeting of FISP and diversifying subsidies away from solely maize production had been a PF campaign promise in 2011, and a component of the party's Revised Sixth National Development Plan (RSNDP), it would not have made sense to undermine the e-voucher initiative (see PF manifesto 2011; MoFNP 2014). Moreover, as one informant observed, "The president hasn't intervened because everyone now 'gets it' because at end of the day, he [Lungu] doesn't get any mileage out of opposing this, and everyone in the districts are complaining

[70] Ibid.
[71] Ibid.
[72] There is, however, anecdotal evidence that in some areas (e.g., Choma) certain banks charged farmers themselves a ZMW 7 transaction fee each time the farmer swiped their e-voucher. This fee was deducted from the e-voucher value, reducing the amount that the farmer could use to purchase inputs (Kuteya et al., 2016).
[73] Interview with ZNFU, August 28, 2015, Lusaka, Zambia.
[74] Interview with MAL, August 24, 2015, Lusaka, Zambia.

about elite capture."[75] Other key members of cabinet were also supportive, particularly the MoFNP which had long advocated for an e-voucher in order to reduce the cost of the program. In fact, one informant from the MoFNP claims that they often lobbied for donor partners to include this as a condition of continued foreign assistance.[76]

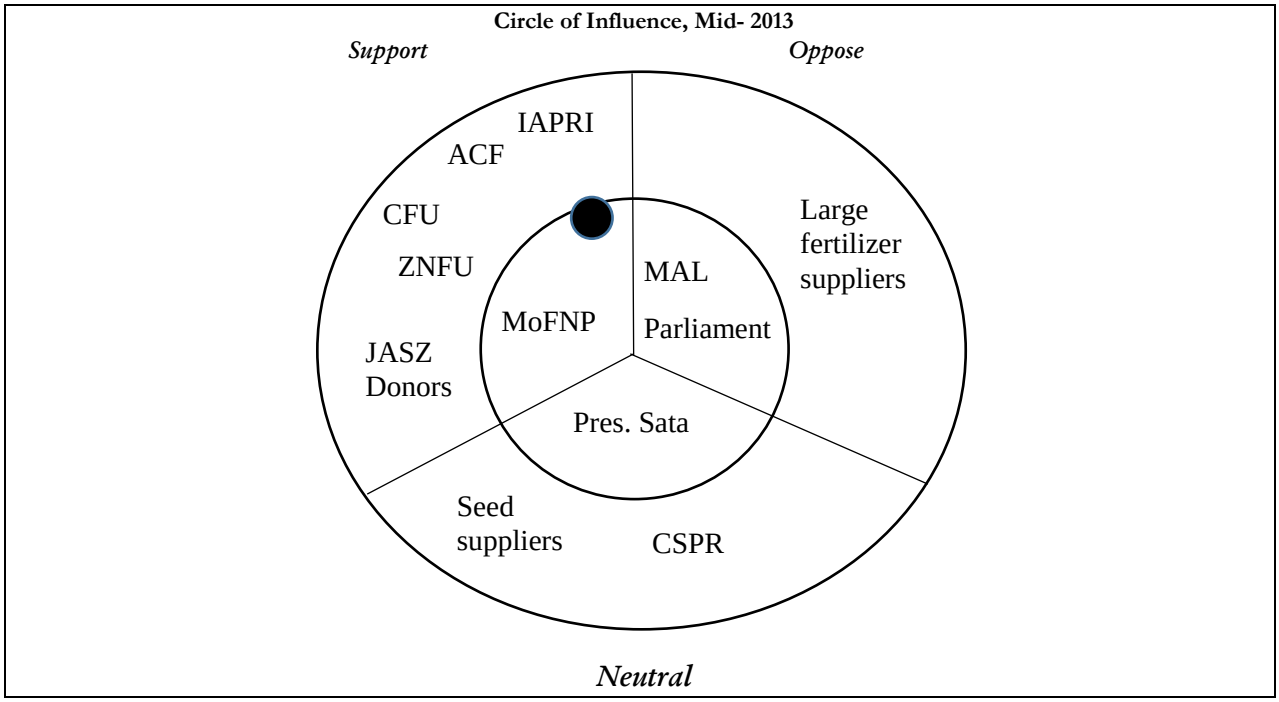
In addition to the relevant government veto players being supportive, *powerful proponents outweighed the opponents*. Since the e-voucher allows multiple fertilizer companies to participate, the main opponents to the e-voucher have been three or four major fertilizer importers who stood to lose out on their favored position in the traditional FISP program. However, the reason offered by the companies is that because the e-voucher at least initially favors districts with better infrastructure, there is a disincentive for companies to ensure availability in remote rural areas where transport costs are higher and agro-dealer networks are less dense. As a representative from one fertilizer company expressed, "People like you are pushing on the e-vouchers, but I have a different view: us, we will not put fertilizer in remote areas. You'll find it in the main centers but not in the rural areas…you'll have a very unequal spread of product."[77] Nevertheless, the fertilizer companies still benefit by having the traditional FISP in place in which the tender system continues to operate. By contrast, the seed companies have been less resistant because they already have more developed distribution systems with agro-dealers than fertilizer suppliers (see Sitko et al. 2012). Moreover, a much larger number of seed companies had been involved in the traditional FISP and therefore, the seed companies did not represent the same type of oligopoly and had less to lose from the shift to the e-voucher.

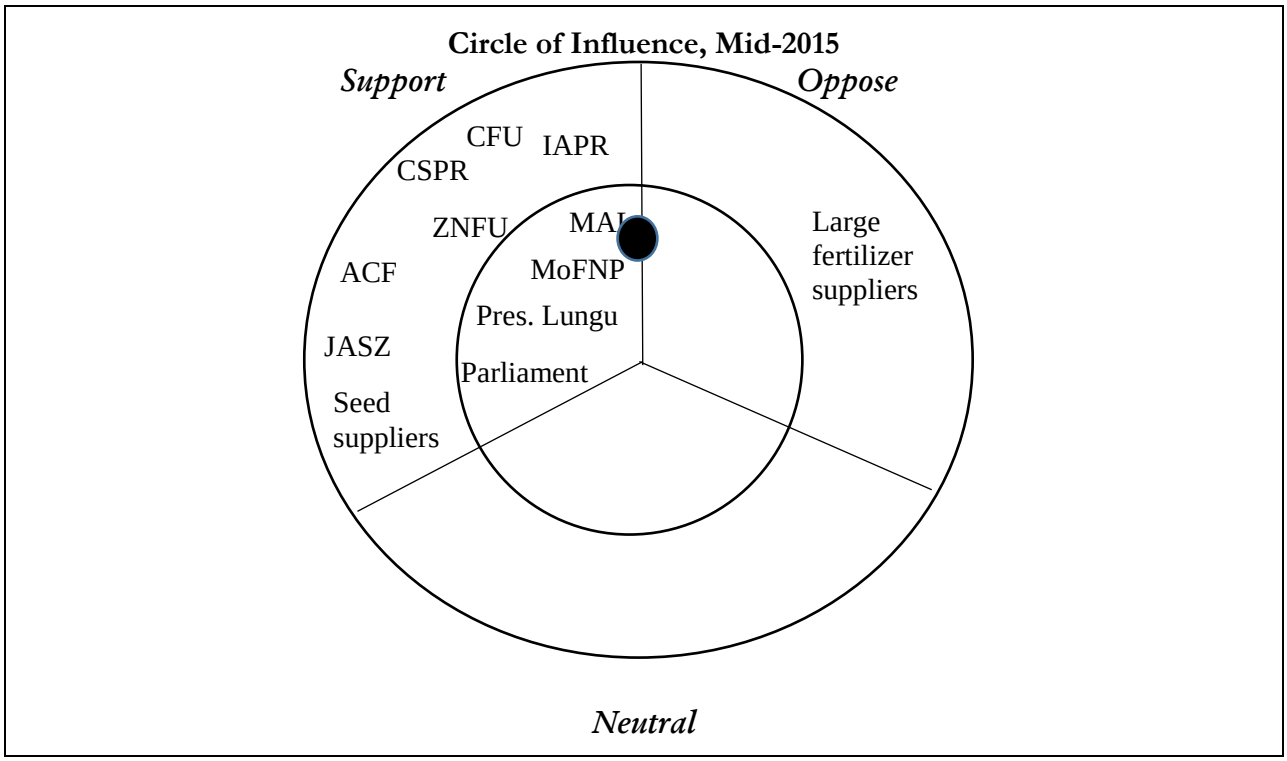
The *timing was also propitious* for two key reasons. First, in order to be effective for the 2015/2016 agricultural season, the e-voucher would need to be rolled out by September at the latest.[78] Given the large number of procedures involved in implementation, ranging from identifying and confirming beneficiaries, producing the Visa cards, sensitizing both farmers and MAL technocrats regarding the system, and distributing point of sale machines to eligible agro-dealers and training them in their use, a large degree of lead time was needed. As such, the cabinet decision could not be further delayed. Secondly, the 2015/2016 agricultural season was the last one before the 2016 presidential and parliamentary elections.[79] Since the PF had continuously promised to improve FISP, and had publicly been criticized for failing in 2013 to do so, this was the last chance for the PF government to try this innovation during its first term in government. Moreover, since it was only a pilot and the traditional and much larger FISP scheme would continue to run in tandem, the possibility of the pilot failing did not pose a huge risk for the ruling party. On the other hand, if it succeeded, then it would distinguish the PF from the previous MMD regime and help it mobilize electoral support in the four provinces where it was being piloted.[80] Figure 4 above illustrates through a circle of influence graphic how stakeholders shifted over time in their position on the e-

[75] Interview with MoFNP, August 28, 2015, Lusaka, Zambia.
[76] Ibid.
[77] Interview with Omnia, August 28, 2015, Lusaka, Zambia.
[78] Ideally, the Visa cards should be distributed by March or April.
[79] The date of August 11 was not set for the 2016 elections until long after the e-voucher was adopted. However, elections in Zambia are always held every five years and typically during the months of September or October, which is still in the midst of the agricultural season.
[80] Indeed, the PF's party manifesto for the 2016 elections claimed credit for improving transparency in the program: "The e-voucher piloted in 13 districts in 2015/2016 farming season confirmed that FISP is weak in targeting beneficiary farmers and is therefore, vulnerable to abuse. The pilot removed 20,000 unintended beneficiaries from a list of a total of 241,000 farmers" (see PF Manifesto 2016: 26).

voucher and how having the president, MoFNP, and MAL on board by 2015 made a major difference in attaining the reform.

Figure 4—FISP e-voucher Reform, Changing Circles of Influence





Implementation

The implementation of the e-voucher scheme was originally intended to occur on August 1, 2015 and proceed through the end of November 2015. Ultimately, implementation was more than two months later than initially planned, officially launched by President Lungu on October 12, 2015 in Choma District (ZNBC 2015). The short time frame initially allocated for such an undertaking certainly contributed to this delay. But in other respects, the fact that the program was implemented at all was impressive after so many previous false starts. The final number of beneficiaries ultimately selected was 242,683 rather than the originally planned 241,000.[81]

The necessary condition for implementation was the availability of the *requisite budget* resources. As noted earlier, in the October 2015 budget speech for the 2016 fiscal year, the MoFNP allocated ZMW 1 billion for FISP, of which ZMW 248.3 million was intended to support the e-voucher mechanism (MoFEP 2015). Moreover, a set of donors (e.g. the European Union, SIDA, Finland, DfID, the African Development Bank, and USAID) had already rhetorically committed to supporting the e-voucher if it was ultimately adopted. Thus, less than a month after the cabinet approval, MAL sent a letter to the head of the agricultural CP "troika", Finland, requesting the cooperating partners to indicate which budget lines for e-voucher implementation they would support.[82] The donors ultimately provided US$ 1.6 million (ZMW 11 million) to roll out various aspects of the e-voucher, including Visa Card production, farmer registration, beneficiary selection, agro-dealer selection and training, monitoring and evaluation, and an online database for system management. There was still a large shortfall in resources immediately prior to the launching, which was handled with a large degree of political adeptness. As noted by a representative of ZNFU, "We have said that we should have the president launch this, not the MAL minister. The president will be very happy and then we will ask him for more money to launch it and he won't be able to deny the request."[83]

In a speech to Parliament in October 2015, Minister Lubinda claimed that the Ministry of Finance had mobilized all of the resources needed to pay input suppliers for services during the 2015/2016 season, which presumably also referred to those participating in the voucher scheme (NAZ 2015a). This was especially impressive given that the scheme was hurt by a rapid depreciation of Zambia's currency, which continued to make the cost of imported inputs higher and forced agro-dealers to increase their prices. In turn, MAL increased the value of the e-voucher (before the farmer contribution) from ZMW 1400 to ZMW 1700 per beneficiary (Kasonde 2016).

The complexity of the e-voucher demanded a high level of *institutional capacity*. On the one hand, the e-voucher drew on existing institutional architecture that had been reinforced over repeated seasons of implementing FISP. The FISP Program Coordination Office within MAL was the main implementing unit and engaged with district agricultural committees (DACs) and camp agricultural committees (CACs). Comparing Figure 5 below with Figure 3 provides a general overview of how the regular FISP and the e-voucher pilot are ideally intended to operate based on the implementation manuals. Just as under the regular FISP (i.e. non-e-voucher program), implementation of the e-voucher required cooperatives within the selected pilot districts to submit

[81] Even as the e-voucher was rolled out, it is important to note that the traditional FISP was implemented in tandem in the non-pilot districts. Some key changes in the 2015/16 year included the expansion in coverage from four to nine crops and an increase in the average subsidy rate from 66 to 71.6 percent (see Katongo 2015).
[82] Personal communication with EU delegation, September 2016.
[83] Interview with ZNFU, August 28, 2015.

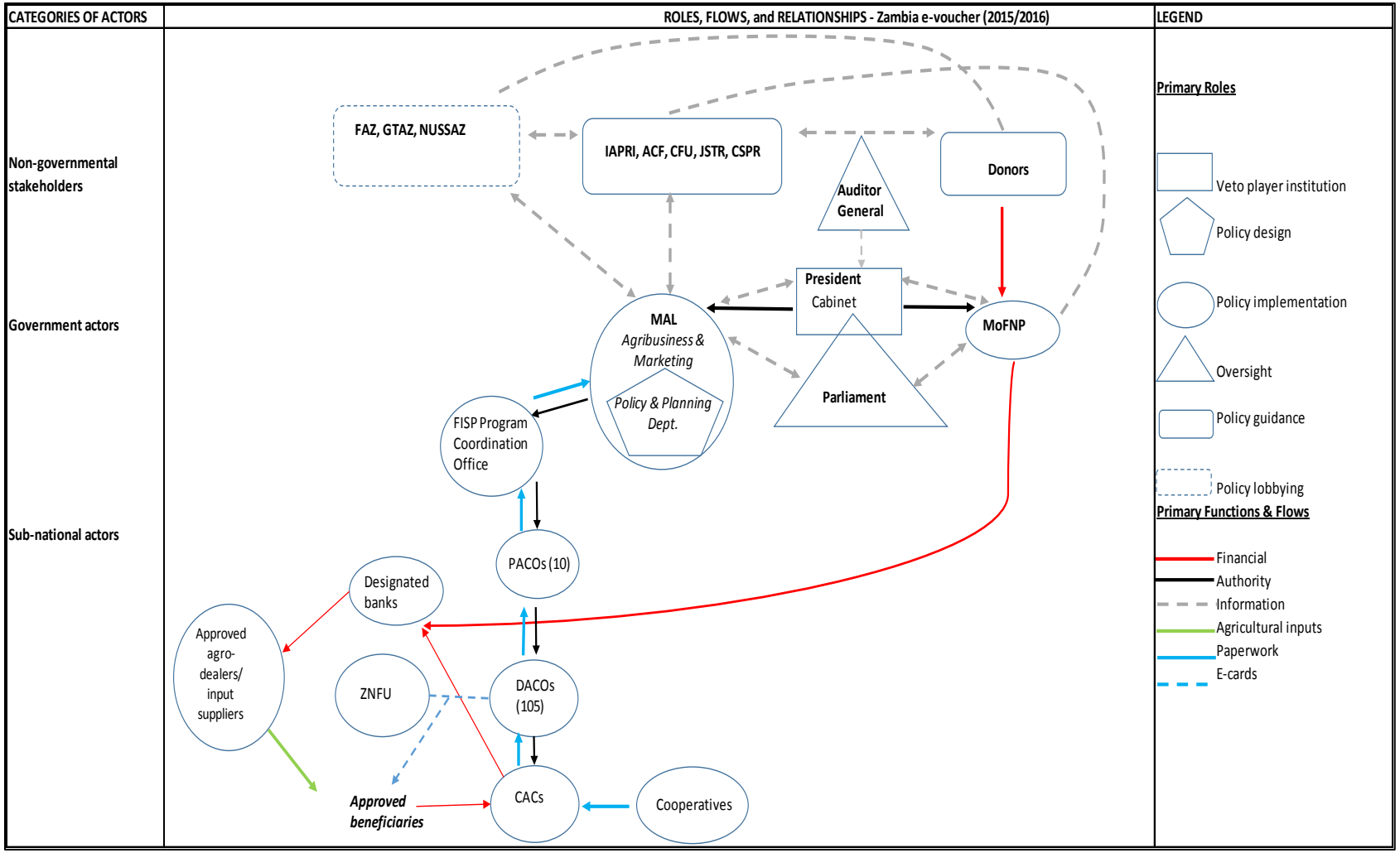
names to their CACs who then would submit a list of approved beneficiaries to the DACs for ratification. The DACs then forwarded the names to the banks. DACs also are responsible for the distribution of e-voucher cards to beneficiaries in conjunction with ZNFU. The latter was also responsible for the printing of the cards as well as engaging with the banks (MAL 2015). The Provincial Agricultural Coordinator's Office (PACO) were responsible for monitoring the DACs.

In 12 of the 13 districts, the submission of beneficiary names to the DACs from the CACs occurred between August and September 2015. However, in Monze district, the beneficiary names were submitted late, resulting in delays in the distribution of cards there (NAZ 2016). At the same time, the two selected banks for the program appeared to be overwhelmed with the task of producing so many Visa cards, requiring MAL to bring an additional bank on board, United Bank for Africa. Farmers contributed ZMW 400 to their Visa cards and in turn receive access to the ZMW 1700 contributed by government, resulting in a total e-voucher value of ZMW 2100.

Such setbacks could have undermined the confidence of many in the program. However, MAL Minister Lubinda's overriding *commitment as a policy champion* to the e-voucher was critical for sustaining political will for the program, even when it was criticized by the PF's general secretary as ineffective based on a visit to Kabwe district (see Lisulo 2016). This commitment is especially important since, along with the Minister of Finance, Lubinda is a key member of the PF's powerful central committee. As such, he combines technocratic efficiency with political power, which is rare for agricultural ministers.

The relevant *implementing veto players* included, as noted above, MAL's PCO, ZNFU, the participating banks, CACs, DACs, RACs, agro-dealers, and input suppliers, including seed and fertilizer importers. All of these players needed to be involved and carry out their respective roles in order for the e-voucher to be implemented in the 2015/2016 agricultural season. As noted above, there were some capacity constraints among some of these players; but none of these actors actively obstructed the e-voucher roll-out. Consequently, the first season of the e-voucher did not stall at the adoption stage of the policy process.

Figure 5—Schematic Map of Policy Process and Implementation of FISP E-voucher, 2015/16



Source: Modified from e-voucher implementation manual, 2015/16 (see MAL 2015) and Kuteya et al. 2016. Notes: The triangle for parliament overlaps with the cabinet to purposely illustrate that members of parliament are often appointed as cabinet members.

Evaluation and Reform

Since the e-voucher initiative is relative new at the time of writing, no in-depth evaluation of the program has yet to occur. However, information from media reports, research reports, and Parliamentary transcripts revealed some key lessons learned about the program, and Kuteya et al. (2016) provide some very useful initial findings. On the positive side, the process of preparing the farmers' registration lists for the 13 pilot districts uncovered approximately 20,000 "ghost farmers" whose names were removed and FISP more appropriately targeted (cited in Kuteya et al. 2016). In addition, while approximately 85 percent of households still used the e-vouchers to obtain maize seed and fertilizer, there was a notable degree of diversification of purchases for other types of seeds as well as for herbicides and insecticides (Kuteya et al. 2016). Minister Lubinda also noted that farmers in Southern province, which was badly affected by drought during the pilot season, even purchased livestock using the e-voucher (NAZ 2016). Moreover, some evidence suggested that the e-voucher helped "crowd in" the private sector, with about 230 new agro-dealers participating in input distribution to rural farmers (Kuteya et al. 2016).

At the same time, there were a number of challenges encountered during the piloting phase. A big weakness of the program appeared to be poor sensitization of farmers who did not fully understand the system and why input prices continued to go up to reflect the currency's depreciation (see Mbebwe 2015). In addition, delayed activation of the Visa cards was extremely common while, as noted earlier, the depreciation of the kwacha caused the cost of the program to increase as MAL topped up the voucher by an extra ZMW 300. Kuteya et al. (2016) noted that having the pilot e-voucher and regular FISP program run in tandem prompted farmers to make comparisons between the two. Since the regular FISP program is based on a set number of fertilizer and seed bags, participating farmers were less vulnerable to exchange rate depreciation than those dependent on the fixed currency e-voucher.

Collectively, these research briefs, media findings, and ministerial statements contributed to *changing information* about the e-voucher. They suggested that the theory behind the e-voucher, i.e. that it would help with diversification, reduce leakage, and support the private sector, were indeed possible. Many of the observed challenges during the pilot stage mostly focused on technical or administrative problems to be tweaked rather than large-scale defects with the goals of the e-voucher modality.

Consequently, the Cabinet approved scaling up the pilot in the 2016/2017 year to 39 districts in total, covering more than 480,000 farmers. This decision was also supported by the parliamentary committee on agriculture, which issued a report in April 2016 expressing concern that two parallel input subsidy systems would emerge if the e-voucher was not expanded nationally as soon as possible (NAZ 2015b). The expectation of *changing material resources* contributed to MAL's confidence in expanding the voucher. In the 2016 budget, the MoFNP allocated ZMW 248.3 million (approximately US$ 24 million) for the e-voucher (Mwale 2015). In addition, the EU pledged again ZMW 1billion (about USD 96 million) for agricultural development in Zambia, including for the e-voucher, for the 2016/17 agricultural year (see Bwalya 2016). When Zambia entered Article IV consultations with the IMF in mid-2015, the IFI advocated for the e-voucher then (IMF 2015).[84] Subsequently, as the country prepares to implement an IMF agreement in late 2016, the IMF has

[84] Article IV consultations are part of the IMF's surveillance mandate whereby an IMF team assesses the economic and fiscal health of a country through in-country missions and discussions with relevant government officials.

focused on the government curtailing fuel subsidies with no mention of FISP's burden on the treasury.[85] As such, there is both explicit and implicit donor support for continuing with the e-voucher approach.

Finally, *institutional shifts* were initially minor in the year immediately following the launch of the e-voucher but became more pronounced after the re-election of the PF government in the August 2016 presidential and parliamentary elections. First, MAL was split in September 2015, resulting in a Ministry of Agriculture and a new Ministry of Fisheries and Livestock. While this raises questions about how livestock and veterinary inputs will be handled under an e-voucher in a ministry no longer in charge of that sector, it does not suggest any threat to the overall resources or continuity to the pilot program. Second and more significantly, the minister who oversaw and promoted e-voucher adoption, Minister Lubinda, was replaced in September 2016 after only 18 months in office. At the time of writing, the implications of this are not yet clear, but past policy episodes in Zambian and the KM more generally suggest that this could potentially hinder a smooth transition of the e-voucher from a pilot to a national program.

Summary

E-vouchers had long been on the policy agenda as a means of reducing leakage of FISP, improving its effectiveness at enhancing agricultural productivity, and decreasing the cost of the subsidy program. Initial attempts in 2013 to implement the e-voucher were thwarted at the policy design stage as too many technological challenges and material costs of the program outweighed potential benefits. Two years later, with the success of the ZNFU Visa card model for the Lima Credit scheme and changes in MAL management, the e-voucher was finally adopted by cabinet. Implementation was quickly initiated due to donor disbursements, the engagement of ZNFU, and an established institutional architecture from the national to the CAC level that has overseen many seasons of FISP implementation. While some capacity constraints and the lack of sufficient pre-implementation planning resulted in sporadic complaints or confusion about the e-voucher, they did not warrant completely backtracking on the voucher modality.

[85] See, for example, https://www.imf.org/external/np/sec/pr/2016/pr16120.html (accessed July 11, 2016).

6. CONCLUSIONS

The decision to use input subsidy programs to low use of inorganic fertilizer and poor crop yields has been relatively widespread in Africa over the last decade (see Jayne and Rashid 2013). However, there has been little understanding of why some governments have chosen this policy option, what underlies the choice of specific design modalities, and why reforming these policies is so difficult. To address this gap, this paper applied the Kaleidoscope Model (KM) to understand the emergence and implementation of FSP in 2002, its reform and transformation into FISP in 2009, the failed adoption of an e-voucher pilot for FISP in 2013, and the ultimately successful implementation of an e-voucher pilot in 2015. These multiple spins of the KM are useful for two key reasons. First, from a theoretical standpoint, it helps uncover which KM hypotheses are consistently relevant across different policy episodes while others seem more idiosyncratic. Secondly, from a policy perspective, it highlights a variety of lessons for achieving agricultural reform in Zambia and more broadly.

More specifically, Tables 4 and 5 below consolidate the findings from the case study according to the policy episodes. In most instances, the KM hypotheses provided a fairly robust explanation for how a policy unfolded. However, there are two notable exceptions. The first is with respect to the role of knowledge and research, especially when a policy is first pursued. Policymakers did not appear to engage with much research in determining the initial design of FSP and in some cases, the design appeared to contradict the stated purposes of the program. Similarly when the e-voucher emerged on the policy agenda, some research suggested the potential benefits of this modality. However, the specific design of the final e-voucher card depended more on a concrete pilot example from ZNFU than any in-depth study. Yet, research and other forms of information dissemination are very significant for generating a re-evaluation of existing programs and subsequently pushing reform onto the agenda. As attested by the policy chronology in Table 3, a flurry of research papers in 2008/2009 and 2013 was followed by a serious reconsideration of ways to increase the effectiveness of FSP and FISP, respectively. Thus, initial program designs may be influenced more by prior biases and beliefs, and the cost-benefit calculations they engender, and then may only be updated by research and refined after a period of time has passed.

A second observation regarding the KM is that powerful opponents or proponents of a policy at the adoption stage will likely become more widespread as a policy is consolidated. In the case of the FSP, the policy faced no obvious opposition when it was first pushed by President Mwanawasa in 2002. Indeed, when any major policy first emerges, the constellation of potential winners and losers may not be immediately clear. As FSP became an entrenched component of Zambia's agricultural strategy, more opponents emerged over time. Similarly, with the initial year of e-voucher Visa card adoption in 2015, only large fertilizer companies were opposed while a large coalition of researchers, donors, MAL officials, and civil society organizations were proponents. As the policy proceeds, it will be telling to observe whether that coalition remains united in their preferences.

Table 4—Kaleidoscope Model Hypothesis Testing

Element of Policy Process	Determinants of Policy Change	Hypothesis	FSP/FISP *Implemented (2002) Reformed (2009)*	FISP E-Voucher Scratchcard *Stalled (2013)*	FISP E-voucher Visa Card *Implemented (2015)*
Agenda setting	Recognized, relevant problem	Empirical conditions, backed by credible documentation, interpreted by policymakers as problems	Low use of inorganic fertilizer and low affordability of inputs evidenced by poor recovery of credit loan schemes of 1990s	Large body of research indicating that FISP was not effective in achieving its goals and subsidies outweighing other agricultural investments	Large body of research indicating that FISP was not effective in achieving its goals and subsidies outweighing other agricultural investments
	Focusing event	A well-defined event that prompts public attention to a problem or that creates a window of opportunity for policy change	• Southern African droughts (2000-2002) • Presidential elections (Dec. 2001)	• Pioneering of e-voucher scratchcards by Zoona in 2009 • Ousting of MMD in 2011 elections by PF	ZNFU launches Visa pre-paid card under its Lima Credit Scheme
	Powerful advocates	Strong individuals, organizations, or companies were supporting a new or changed policy to key decision makers.	• Newly elected President Levy Mwanawasa	IAPRI, ZNFU, CFU, ACF, JASZ donors	• IAPRI, ZNFU, CFU, ACF, JASZ donors • Reformist MAL Minister, Given Lubinda, appointed in 2015
Design	Knowledge and research	Evidence-based and experience shapes feasible design (new/existing/local/international).	No clear body of empirical research drawn on to inform initial FSP modalities	• Key report speculating on benefits of e-voucher • But no evaluations of existing interventions using scratchcards	• Emerging but sporadic evidence of challenges with scratchcard pilots • ZNFU shared model with Hon. Lubinda
	Norms, biases, ideology, beliefs	Widespread beliefs shape feasible designs (not based on evidence, no proof but widely felt)	• Biases against subsidies by donors informed initial sunset clause • Strong rhetoric around "enabling environment" and a "managed transition" from the public to private sector	• Speculation about lack of technology in rural areas • Worries about agro-dealers' fertilizer stock • Concerns about GRZ's ability to pay agro-dealers upfront	ZNFU Visa card design suggested a comprehensive modality that could be catalytic in ultimately linking with other GRZ social welfare programs, bringing small holders into the banking sector, and diversifying inputs through use of "wallets"

Table 4—Continued.

	Cost-benefit and risk calculations	Known costs and expected benefits (political, economic, social) determine preferred design.	• Benefits exceeded costs • Economically, Zambia just received HIPC relief • Politically, Mwanawasa and other politicians gain from targeted handouts to rural voters	• Costs exceeded benefits • Loss of patronage to key actors within MAL through reform • High uncertainty and late tendering and preparation in 2013 season increased fears of poor implementation	• Benefits exceeded costs • Individuals benefiting from FISP patronage leave MAL • ZNFU model provided higher certainty since in scale and scope, it was closer to FISP than other models
Adoption	Powerful opponents vs. proponents	•For a policy to be adopted, supporters must be relatively more powerful than opponents. •For a policy to not be adopted, opponents must be relatively more powerful than supporters.	• No opponents in 2002 • Parliamentarians and fertilizer companies supported it and donors wanted to help alleviate Zambia's humanitarian emergency through PRSP funding	---	• Ministry of Finance and donors had been pushing for e-voucher for years • MAL Minister was pro-reform • Big fertilizer companies opposed while from seed companies more supportive
	Government veto players	•For a policy to be adopted, government agents with ultimate decision-making power must be supportive or neutral. •For a policy to be vetoed, government agents with ultimate decision-making power must be an opponent.	• President Mwanawasa pushed the policy early in 2002 and it was quickly integrated into the Ministry of Finance budget for that year	---	President Lungu was not opposed to e-voucher
	Propitious timing	Supporters wait for opportune moments (political, economic, social) to push policy change. What was it? (i.e election)	• Announcement coincided with budget calendar • Enough advance timing for upcoming agricultural season	---	• Planning and cabinet approval given with adequate time before agricultural season • Last agricultural season before 2016 elections, with high stakes for PF

Table 4—Continued.

Element of Policy Process	Determinants of Policy Change	Hypothesis	FSP/FISP *Implemented (2002) Reformed (2009)*	FISP E-Voucher Scratchcard *Stalled (2013)*	FISP E-voucher Visa Card *Implemented (2015)*
Implementation	Requisite budget	Government or donors provide fund sufficient to carry out the new policy or program as intended	• Donors committed US$1.2 billion from 2002-2004 for PRSP • General budget support began in 2002 and scaled up in 2005	---	In addition to commitments by MFNP, donors committed US$1.6 million for e-voucher rollout
	Institutional capacity	Government, organizations, or companies were available and able to practice and manage the new policy or program as it was intended	• Poor collaboration between MACO and MFNP • Many DACs too weak to monitor beneficiaries • NCZ production capacity low	---	• Drew largely on existing decade-old structure for FISP • The two banks were overwhelmed so a third was brought on board
	Implementing stage veto players: a) private sector b) NGO c) street-level bureaucrats	Designated implementors -- from the private sector, NGO or local agencies -- have both incentives and willingness to implement the policy program	Contracted fertilizer companies delayed disbursements in years when not paid by GRZ	---	All key implementers (MAL, ZNFU, banks, agro-dealers, input suppliers, CACs, DACs, RACs) tried to carry out their roles
	Commitment of policy champions	Strong individuals, organizations, or companies continued to publicly support the program	• Politicians and President Mwanawasa remained committed and expanded the program	---	• Minister Lubinda, who became key member of the PF's central committee, is a strong champion for the program • Civil society, donors, MFNP, and research organizations continue to support e-voucher approach

Table 4—Continued.

Element of Policy Process	Determinants of Policy Change	Hypothesis	FSP/FISP *Implemented (2002) Reformed (2009)*	FISP E-Voucher Scratchcard *Stalled (2013)*	FISP E-voucher Visa Card *Implemented (2015)*
Evaluation & reform	Changing info and beliefs	New learning emerges that impacts how decisionmakers believe the policy/program should be structured (social or evidence-based learning)	• Huge body of evidence on inefficiencies with FSP from research community, Auditor General, and civil society • FSRP study tour organized to show MACO officials how other countries manage their ISPs	---	Emerging findings about technical and administrative weaknesses but no fundamental problems uncovered
	Changing material conditions (resource availability, technology, problem status)	Something about the environment has changed in a way that influences the need or functioning of the policy	Food and fertilizer crisis of 2008 increased the cost of fertilizer while increasing concerns over food production	---	No major changes in the funding environment
	Institutional changes	Changes in institutional architecture or staffing bring new players, new ideas, new priorities to the policy arena.	• Death of Mwanawasa in 2008 and election of Banda • Cabinet reshuffle • Shift in the budget calendar to increase coherence between planning and expenditure timelines	---	No major institutional shifts as of writing

Table 5—Abbreviated Hypothesis Testing

Element of Policy Process	Hypotheses	FSP/FISP *Implemented (2002) & Reformed (2009)*	FISP E-Voucher Scratchcard *Stalled (2013)*	FISP E-voucher Visa Card *Implemented (2015)*
Agenda setting	Recognized, relevant problem	Yes +	Yes +	Yes +
	Focusing event	Yes +	Yes +	Yes +
	Powerful advocacy coalitions	Yes +	Yes +	Yes +
Design	Knowledge & research	No	*Yes* +	*Yes* +
	Norms, biases, ideology & beliefs	Yes +	Yes -	Yes +
	Benefit-cost calculations	Yes +	Yes -	Yes +
Adoption	Powerful opponents vs. proponents	No	---	Yes[0]
	Government veto players	Yes +	---	Yes +
	Propitious timing	Yes +	---	Yes +
Implementation	Requisite budget	Yes +	---	Yes +
	Institutional capacity	Yes -	---	Yes +
	Implementation veto players	*Yes* -	---	Yes +
	Commitment of policy champions	Yes +	---	Yes +
Evaluation & Reform	Changing information & beliefs	Yes +	---	*Yes* +
	Changing material conditions	Yes +	---	No
	Institutional shifts	Yes +	---	Yes[0]

Notes: Yes = variable was present in the case study; No = variable was not present in the case study; + means that the variable was responsible for reform proceeding as intended; - means that the variable hindered reform from proceeding as intended; [0] means that the variable was present but it did not appear to influence the outcome thus far. Italicized cells indicate that the variable was weakly present, represented by the fact that only one or two sources were available to substantiate the hypothesis.

More broadly, the Zambian case reveals a number of important lessons with respect to policy change. First, policy reform options that are scientifically, economically, and socially sound can gain greater reception by high-level policymakers if they also coincide with political objectives. Repeatedly, interviewed stakeholders noted that FSP/FISP was a politically-motivated program because it resonated with so many rural voters. The political salience of the program was further underlined in 2006 when the subsidy rate under FSP was increased from 50 to 60 percent as a result of an MMD campaign promise rather than any empirical findings (World Bank 2007). Key reforms of FSP and its transformation into FISP, particularly the reduction in fertilizer bags, were marketed to MMD President Banda from a variety of angles, including emphasizing that a reduction in bags would allow for a doubling of beneficiaries and by extension, potentially more MMD supporters. Similarly, in October 2015 President Lungu rather than the MAL Minister was asked to launch the e-voucher because it was believed this public display would create a high level of political ownership over the program that might translate into more government resources for it in the future.

Secondly, even when there is mounting evidence of problems with a policy, resistance to change may be deeply entrenched. While this resistance may be due to blockages from those who benefit from the status quo, it can be equally tied to a high level of uncertainty about technical capacity. In such instances, pilot projects are extremely influential, especially those that have key characteristics, including replicability, scalability, and sustainability, which can further incentivize government investments.

Thirdly, individual ministers such as Given Lubinda can play a consequential role in policy change, reflecting findings elsewhere that policy champions are crucial for change (see Pelletier et al. 2012).

Yet, precisely because of this, ministerial volatility can be a significant challenge for policy commitment. In the Zambian case, such volatility is reflective of deeper institutional issues regarding legislative and executive overlaps that are typical in Westminster-style political systems as well as intra- and inter-party tensions. As such, stakeholders who want to sustain reforms need to ensure commitment from a broad array of high-level actors as insurance against backtracking when elections or cabinet shuffles disrupt painstakingly crafted ministerial relationships. As Andrews (2008: 106) emphasizes, networks are more important than individual policy champions such that "effective political leadership is often characterized by the presence of groups of political leaders supportive of reform – coalitions or networks of individuals spanning boundaries or organizations influenced by or potentially influencing reform."

Finally, the case suggests that the role of donors in agricultural policy has changed over the last decade, especially in middle-income countries such as Zambia. Donor resources were essential to the implementation of the e-voucher in 2015. However, their exhortations to adopt an e-voucher, and even the inclusion of this as a Performance Assistance Framework stipulation for budget support, appeared to fall on deaf ears for a number of years. As rising public debt looms over the country in the wake of low commodity prices and high levels of external financing through Eurobonds, it remains an open question whether the pendulum will swing back yet again, with donors again asserting greater leverage over policy directions in the agricultural sector and elsewhere in the economy.

Overall, the Zambian case demonstrates how government-led input subsidy programs can become highly entrenched in a country's policy landscape, even when there are unintended, negative consequences of such programs for agriculture production, behavioral incentives, and the composition of public investments. Based on the findings here, substantial change for ISPs is more likely when a tipping point can be reached between having a window of opportunity that emerges in the form of a focusing event (e.g. food crisis) or an institutional shift (e.g. new president or new ruling party) combined with broad stakeholder support that is bolstered by evidence on policy alternatives, availability of concomitant material resources, and sustained commitment from politically important policymakers.

APPENDIX 1: TABLE OF INTERVIEWEES

Category	Organization
Government	Ministry of Agriculture and Livestock, Deputy Ministry Ministry of Agriculture and Livestock, Policy and Planning Department Ministry of Agriculture and Livestock, FISP Implementation Office District Agricultural Coordinator Office, Lusaka District Ministry of Finance, Economic Forecasting and Modeling Unit Parliamentary Agricultural Committee
Research & Advocacy	Indaba Agricultural Policy Research Institute Agricultural Consultative Forum (ACF) Civil Society for Poverty Reduction (CSPR)
Farmers Organizations & Fertilizer Suppliers	Zambian National Farmers' Union (ZNFU) National Union of Small Scale Farmers of Zambia
Input suppliers	Grain Traders' Association of Zambia Zambian Fertilizers' Association Omnia Fertilizer Zambia
Donors	USAID Royal Norwegian Embassy Food and Agriculture Organization (FAO) European Union World Bank

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