Feed the Future Innovation Lab for Food Security Policy

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Smallholder farmers' and other agricultural sector stakeholders' priorities for government spending: Evidence from Zambia

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Introduction

Increasing agricultural growth and reducing rural poverty are critical for improving rural livelihoods in Zambia. Yet agricultural growth in the country has been erratic and the rural poverty rate has declined only marginally since 2004. Empirical evidence from around the world suggests that the pattern of government expenditures in the agricultural sector is of key importance for promoting agricultural growth and poverty reduction (e.g., Economist Intelligence Unit, 2008; Fan et al., 2008; World Bank, 2008; Goyal and Nash, 2017; among others). For example, public good investments in agricultural research and development (R&D), extension, and rural roads often yield relatively higher returns, while expenditures on private goods like agricultural subsidies often yield relatively lower returns.

In contrast, the Zambian government devotes the lion's share of its agricultural sector spending to subsidies (e.g., agricultural input subsidies through the Farmer Input Support Programme (FISP) and maize price subsidies through the Food Reserve Agency (FRA)), leaving little money to devote to other agricultural sector programs and investments. One potential explanation for this is that although the economic returns to things like agricultural R&D and rural infrastructure are likely to be high, the benefits are diffuse and often take many years to materialize. On the other hand, political economy considerations may drive policymakers to favor programs like FISP and FRA, which are more tangible and have effects that are realized more rapidly. The conventional wisdom that Zambian voters favor these types of programs may also play a role, despite there being no empirical evidence to suggest that these programs win votes (Mason et al., 2017). It is thus an open question whether Zambians, particularly smallholder farmers who make up the majority of the rural population, really do prefer programs like FISP and FRA over other types of government expenditures in the agricultural sector.

Key Findings

- Results from an open-ended question on nationally-representative surveys in 2015 and 2019 indicate that smallholder farmers' top priorities for additional government spending in general (not limited to the agricultural sector) are health care, roads and bridges, education, water and sanitation, and the Farmer Input Support Programme (FISP).
- Results from a smaller survey in 13 districts in 2017 using a method ("best-worst scaling" (BWS)) that requires respondents to consider tradeoffs between different options and that focused on 10 specific agricultural sector policy options indicate that smallholder farmers would most like to see additional government spending be devoted to FISP or the Food Reserve Agency (FRA).
- In contrast, results from a similar BWS survey in 2019 with other agricultural sector stakeholders (representing research organizations, NGOs, government, private sector groups, and donors) indicate that these stakeholders view FRA and FISP as the lowest priorities for additional government spending. Instead, these stakeholders favor increased expenditures on public goods such as extension, rural infrastructure, and crop research and development, which have been shown to have high returns to agricultural growth and poverty reduction.

To our knowledge, no previous studies have attempted to measure Zambian smallholder farmers' or other stakeholders' preferences for different types of public expenditures. This FSP Policy Research Brief summarizes the key insights from data on these preferences collected between 2015 and 2019 through four different surveys and two different methodologies.

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Data and Methods

The findings reported here are derived from the following data sources:

- A question on the 2015 and 2019 Rural Agricultural Livelihoods Surveys (RALS15 and RALS19). These surveys were implemented by the Indaba Agricultural Policy Research Institute (IAPRI) in conjunction with the Central Statistical Office, the Ministry of Agriculture, and the Ministry of Fisheries and Livestock in June and July 2015 and 2019. These surveys are nationally- and provincially-representative of smallholder farm households, and have sample sizes of 7,933 and 7,241 households, respectively. The RALS is a longitudinal (panel) household survey, meaning that the same households are followed over time; however, the main respondent for a given household might have been different between RALS15 and RALS19.
- A module on the E-Voucher-Based FISP Follow-Up Survey, implemented by IAPRI in June and July 2017 (henceforth, the "2017 E-Voucher Survey"). A total of 710 households in 13 districts were interviewed for this survey. The 13 districts were Chibombo, Kabwe, Kapiri Mposhi, Mkushi, Chisamba, Sinda, Chongwe, Rufunsa, Choma, Mazabuka, Monze, Namwala, and Chikankata.
- A survey of other Zambian agricultural sector stakeholders representing research organizations, government, NGOs, private sector organizations, and donor agencies (henceforth, the "2019 Stakeholder Survey"), implemented by IAPRI from January-April 2019. A total of 62 stakeholders completed the survey module on policy preferences.

Two different methods were used to elicit respondents' priorities for government spending.

- **Method 1 – A single open-ended question:** On RALS15 and RALS19, respondents were asked the following question, *"If government could increase its spending, what do you think should be the top priority and second most important priority for additional investment/ spending?"* This was stated as an open-ended question. Note that this question did not specifically ask respondents to think about priorities in the agricultural sector per se; however, the sample was composed of smallholder farmers.
- **Method 2 – Best-Worst Scaling (BWS):** For the 2017 E-Voucher Survey and the 2019 Stakeholder Survey, the BWS method was applied and the focus was on government spending on a pre-determined list of potential agricultural sector investments and programs (henceforth, "policy options"). Ten policy options were included in the 2017 E-Voucher Survey and seven were included in the 2019 Stakeholder Survey. See Table 1 for a list of these policy options. The BWS method entailed respondents completing a series of choice sets on which they were asked to select the best (most desirable) and worst (least desirable) use of funds if government were to *increase* its agricultural sector spending by K500 million (roughly 10% of the Ministry of Agriculture budget in the survey years). In the 2017 E-Voucher Survey (2019 Stakeholder Survey), respondents each completed five (seven) such choice sets, each including a different subset of four policy options from the 10 (seven) total policy options. Respondents also completed the same number of choice sets for a scenario in which government had to *cut* its agricultural sector spending by K500 million. Statistical analysis of the BWS data yields ordinal and cardinal rankings of the policy options in each scenario. The directly interpretable result is the so-called "share of preference" (SOP) for each policy option. This gives the probability that a given policy option is chosen as best or most desirable from the full list of policy options. For example, a share of preference of 20% for the "Roads & bridges" policy option would indicate that there is a 20% probability that this policy option is chosen as the most preferred. SOPs sum to 100% when added together across the full set of policy options.

Main Findings

RALS15 and RALS19 open-ended questions

Based on these questions, the five most frequently cited items were: health care, roads and bridges, education, water and sanitation, and input subsidies/FISP (Table 2). Across the two surveys and columns in Table 2 (top priority, second priority, and either top or second priority), these five items accounted for the vast majority (67-82%) of the responses (see the last row of the table). Although the same items were in the top five in both surveys, there were some slight shifts in their relative importance within the top five between survey rounds. For example, whereas the rankings based on the "top" column in RALS15 were (1) health care, (2) roads and bridges, (3) water and sanitation, (4) education, and then (5) FISP, in RALS19, roads and bridges was the most frequently cited, followed by water and sanitation, and health care; education and FISP remained at ranks 4 and 5. Note that of the top five items cited by RALS respondents, only (rural) roads and bridges, and FISP were included in the BWS modules on the 2017 E-Voucher Survey and 2019 Stakeholder Survey because those surveys focused specifically on agricultural sector programs and investments.

Table 1. Policy options in the 2017 E-Voucher Survey and the 2019 Stakeholder Survey (increase spending scenario)[a]

2017 E-Voucher Survey		2019 Stakeholder Survey	
Full description	Short name	Full description	Short name
Increase the number of FISP beneficiaries	FISP beneficiaries	Increase spending on the Farmer Input Support Program (FISP) by increasing the number of beneficiaries and/or by increasing the Kwacha value (government contribution) or quantity of inputs per beneficiary	FISP
[Traditional FISP districts] Increase the quantity of subsidized fertilizer and maize seed per FISP beneficiary. [FISP e-voucher districts] Increase the Kwacha value (government contribution) of the FISP e-voucher per beneficiary.	FISP quantity/value		
Increase the price at which the FRA buys maize from farmers (that is, increase the FRA "floor price").	FRA price	Increase spending on the Food Reserve Agency (FRA) by increasing the price at which the FRA buys maize from farmers (that is, increase the FRA "floor price") and/or by increasing the total amount of maize that the FRA buys from smallholder farmers	FRA
Increase the total amount of maize that the FRA buys from smallholder farmers.	FRA quantity		
Improve roads and bridges in the rural areas (for example, repair existing roads/bridges or build new ones).	Roads & bridges	Same as 2017 E-Voucher Survey	Roads & bridges
Increase the number of agricultural extension agents available to smallholder farmers.	Extension	Increase the number of well-trained and well-resourced agricultural extension agents available to smallholder farmers	Extension
Develop better crop varieties and crop management practices for smallholder farmers.	Crop R&D	Same as 2017 E-Voucher Survey	Crop R&D
Develop better livestock and fish breeds and management practices for smallholder farmers.	Livestock/fish R&D		
Improve access to quality irrigation for smallholder farmers.	Irrigation		
Improve access to affordable credit/loans for smallholder farmers.	Credit	Same as 2017 E-Voucher Survey	Credit
		Improve regulatory capacity (i.e., more inspectors, better enforcement) to ensure that farm inputs (such as pesticides, seeds, fertilizer, veterinary supplies, etc.) available to farmers meet quality standards and are not counterfeit products	Regulatory capacity

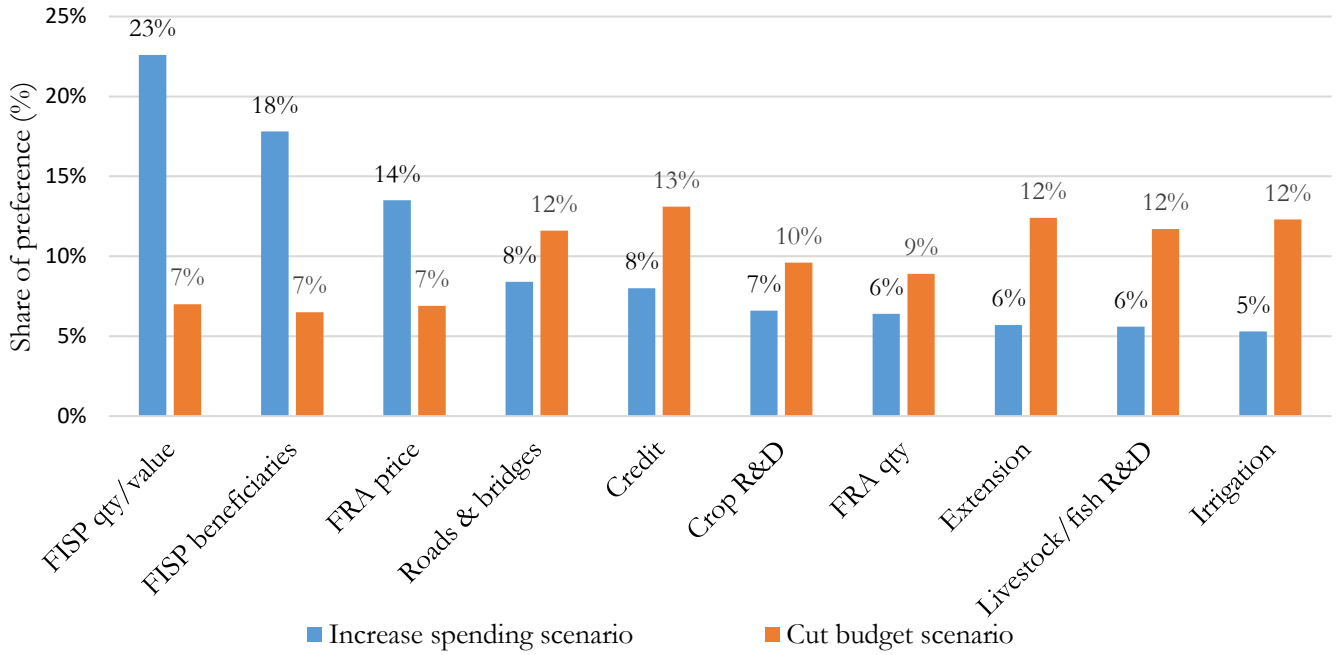
Notes: The full policy option descriptions were read to respondents. The "short names" listed in the table are shorthand labels that we will use in the remainder of the paper. At the time of the 2017 E-Voucher Survey, the e-FISP had been piloted in 39 districts. Of the 13 districts covered in the survey, three were traditional FISP districts (Namwala, Sinda, and Mkushi) and the other 10 were e-FISP pilot districts. [a]In the decrease spending scenario, the policy options were phrased in terms of reducing the number of FISP beneficiaries or FISP quantity/value, reducing the FRA maize price or total quantity of maize purchased, or reducing spending on the other policy options in the table above. See the associated FSP Research Paper (No. 155) for details.

Table 2. Smallholder farmers' government spending priorities based on RALS15 & RALS19 (nationwide)

Policy option	RALS15			RALS19		
	Percentage of respondents nationwide citing this policy option as their ___ priority					
	Top	2nd	Top or 2nd	Top	2nd	Top or 2nd
Health care	19.8	22.5	21.1	15.1	19.4	17.2
Roads and bridges*	19.1	14.3	16.7	20.7	13.7	17.2
Water and sanitation	15.3	12.1	13.7	17.4	14.3	15.9
Education	14.8	14.0	14.4	12.1	11.5	11.8
Input subsidies/FISP*	13.1	12.1	12.6	11.5	8.2	9.8
Other agricultural development (crops, livestock, fisheries)	4.9	4.8	4.8	7.0	7.2	7.1
Rural electrification	4.2	6.4	5.3	3.7	8.0	5.8
Maize marketing/FRA activities*	1.8	2.7	2.3	1.4	2.8	2.1
Improved agricultural extension and training*	1.8	2.4	2.1	1.8	2.6	2.2
Social cash transfers	1.5	1.9	1.7	2.2	3.2	2.7
Security, like the police and military	0.8	1.8	1.3	0.7	1.1	0.9
Develop improved crop varieties or mgmt. practices*	0.7	1.0	0.9	0.8	1.2	1.0
Other social protection programs	0.7	1.6	1.1	1.1	2.5	1.8
Irrigation*	0.7	0.6	0.6	1.5	2.0	1.8
Energy supply	0.4	1.0	0.7	0.7	0.9	0.8
Mobile phone services	0.2	0.4	0.3	0.6	0.4	0.5
Hammer milling services	0.2	0.4	0.3	1.4	0.4	0.9
Other[a]	0.0	0.1	0.0	0.4	0.7	0.5
Total	**100**	**100**	**100**	**100**	**100**	**100**
Top 5 share[b]	82.2	74.9	78.5	76.8	67.1	72.0

Notes: Policy options listed in order of percentage of RALS15 respondents citing the policy option as their top spending priority. [a] Other refers to policy options cited by 0.3% or less of respondents in all cases (banking services, loans/empowerment funds, establishing/facilitating markets, establishing/facilitating businesses, and local government infrastructure development). [b] Top 5 refers to the first five policy options listed in the table. * Indicates policy options for which a similar policy option was included in the BWS modules on the 2017 E-Voucher Survey and/or 2019 Stakeholder Survey.

Figure 1. Smallholder farmers' policy preferences per the 2017 E-Voucher Survey (implemented in 13 districts)



Smallholder farmer BWS results

Based on the responses from 710 smallholder farmers in 13 districts via the 2017 E-Voucher Survey, the BWS results suggest that, of the 10 policy options included, smallholder farmers would most like to see an **increase in agricultural sector spending** be used on FISP (either to increase the subsidy amount or the number of beneficiaries) (Figure 1 – blue bars). These policy options had SOPs of 23% and 18%, respectively. Recall that the SOP indicates the likelihood that a given policy option is chosen as "best". Ranking third in smallholders' preferences for the increase spending scenario was to raise the FRA maize producer price. Roads and bridges, credit, and crop R&D were ranked fourth, fifth, and sixth. At the bottom of the rankings were increasing the number of extension agents and increasing spending on livestock/fish R&D or irrigation. Note the large decline between the SOPs for the top three spending priorities (SOPs of 14%-23%) relative to the bottom seven (SOPs of 5-8%). This suggests relatively strong preferences for the top three spending priorities (FISP quantity/value, FISP beneficiaries, and FRA price) but relatively little difference in preferences among the bottom seven policy options. Keep in mind that the BWS focused on the 10 specific policy options in the left two columns of Table 3 (not all of the items listed by RALS respondents in Tables 4 and 5) and required respondents to make tradeoffs among them, picking the "best" and "worst" in five different sub-sets of four policy options each. Then rankings were derived from these results. This approach is very different from the RALS questions, which were open-ended and simply asked respondents to state their top and second priorities for increased government spending (in any sector). Nonetheless, there is some similarity between the RALS findings and the BWS findings in that FISP was highly ranked in both. Roads and bridges were fairly highly ranked in both methods as well (albeit with weaker support in the BWS results than in the RALS open-ended questions).

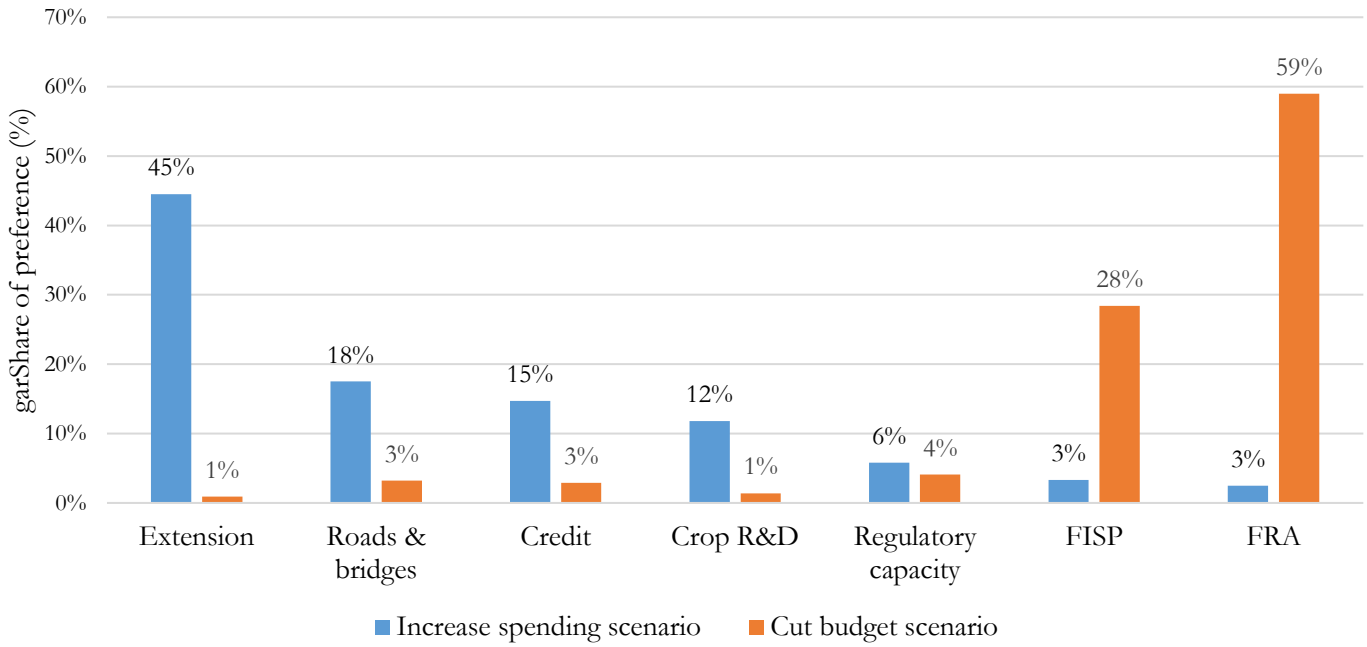
When smallholder farmers in the 13 districts were asked where to **reduce government spending** in the cut budget scenario BWS, the credit policy option was ranked first, followed by extension, irrigation, livestock/fish R&D, and roads and bridges (SOPs of 12-13%) (Figure 1 – orange bars). In sixth and seventh place, respectively, were cutting the budget by reducing spending on crop R&D and the quantity of maize purchased by the FRA (SOPs of 9-10%). The smallholder farmers interviewed least wanted the budget cuts to come via shrinking spending on FISP or reducing the FRA price (SOPs of 7%). Overall, the spread of SOPs was considerably less in the cut budget scenario than in the increase spending scenario, indicating that smallholders' preferences were more varied and weaker in the cut budget scenario.

That the smallholders surveyed in the 2017 E-Voucher survey favored the FISP- and FRA-related policy options relative to the others is, perhaps, not surprising, given that many of the other policy options are public goods with impacts that are only likely to be felt after several years and that may not directly affect the individuals surveyed (e.g., the R&D options). Moreover, government extension is currently very weak, farmer-to-extension agent ratios are high, and extension agents are frequently without the training and resources needed to adequately support the farmers they are charged to serve. Farmers thus might not view increasing the number of extension agents in-and-of-itself as a good use of additional government agricultural sector funds, should they become available.

Stakeholder BWS results

In contrast to the BWS results from smallholder farmers in 13 districts, the results from the BWS implemented with other agricultural sector stakeholders via the 2019 Stakeholder Survey indicate that these stakeholders' policy preferences are significantly more in line with the empirical evidence on the relative returns to agricultural growth and poverty reduction of different types of agricultural sector expenditures. Per Figure 2, among the stakeholders interviewed, extension was strongly viewed as the top priority for additional government spending. Investments in roads and bridges, improving access to credit, and crop R&D ranked second, third, and fourth, respectively. In contrast, FRA and FISP were strongly favored as the best places to cut agricultural sector spending if need be, and only 3% of respondents favored additional spending on each of these programs. Recall that the 2019 Stakeholder Survey was administered to individuals that work for government and donor agencies, NGOs, and private sector and research organizations, all with a focus on the agricultural sector. These individuals are much more likely to be aware of: (i) the evidence from other countries on the relative returns to different types of agricultural sector expenditures; and (ii) the Zambian government's budget allocations to and expenditures on FISP and FRA relative to other potential agricultural sector investments and programs. Both of these are things that IAPRI has emphasized repeatedly in its research and outreach efforts.

Figure 2. Other agricultural sector stakeholders' policy preferences per the 2019 Stakeholder Survey



Conclusions and Policy Implications

Overall, the survey results summarized in this paper suggest that, when asked an open-ended question and not forced to consider tradeoffs, smallholder farmers' highest priorities for additional government spending are health care, roads and bridges, education, water and sanitation, and FISP (Table 1). However, when limited to the 10 agricultural sector-related policy options included in the smallholder farmer BWS and forced to make tradeoffs, FISP- and FRA price-related policy options rise to the top, followed distantly by roads and bridges (Figure 1). In contrast, a diverse cross-section of other agricultural sector stakeholders (representing research organizations, NGOs, government, private sector groups, and donors) view FRA and FISP as the lowest priorities for additional government spending and the two items that would be best to cut should agricultural sector spending need to be reduced. Instead, these stakeholders view public goods investments in agricultural extension, rural infrastructure, and crop R&D (plus improving smallholders' access to credit) as the top spending priorities (Figure 2). These stakeholders' policy preferences are largely consistent with the literature on the types of expenditures that have the highest returns to agricultural growth and/or poverty reduction.

While there is some support among smallholder farmers for increased government spending on rural infrastructure and other agricultural sector public goods, major sensitization campaigns may be needed to raise awareness of the large likely benefits of these public goods investments. IAPRI's provincial-level outreach efforts are one potential mechanism for this. Such sensitization could help build the kind of broad base of public support needed to effectively encourage government to shift some resources away from FISP and FRA toward agricultural sector public goods. A Zambia-specific study on the returns to different types of government agricultural sector expenditures may help, as some groups with an interest in maintaining status quo government expenditure patterns may write off the evidence from other countries as irrelevant to Zambia.

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