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Evaluating Sustainable Agricultural Policies in Zambia: A Case of Choma District, Southern Province

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Abstract

The study was based on evaluating sustainable agricultural policies in Zambia: A case of Choma District, Southern Province. The objectives which guided the study were to establish the impact of Agricultural Input Subsidy programs on smallholder farmers and the overall agricultural sector, to analyse the effects of market liberalization on agricultural productivity and food security, and to investigate the implications of policy reforms on government resource allocation to agriculture and sector performance. a descriptive case study research design was adopted with a purposeful sampling technique for a sample size of 30 respondents based on saturation method of selection, due to statistical rigor and practical constraints (Creswell, 2014) [10]. Data from questionnaires were analyzed through thematic analysis, where recurring themes and patterns related to agricultural policies were identified. The key study finding on demographic data is that female farmers, middle-aged farmers, and those with moderate experience dominate the sector, highlighting the need for gender-responsive and age-appropriate policies. In this regard, the study concludes that agricultural policies must address the challenges faced by these groups, with a focus on enhancing access to resources, training, and market opportunities. Also, based on key findings, the study establishes that Agricultural Input Subsidy these programs have had a significant positive impact, particularly in increasing crop yields and empowering women, there are notable challenges (gaps in accessibility, logistical issues in distribution, and the over-reliance on subsidies) that need to be addressed. In addition, the study establishes that while market liberalization has improved agricultural productivity for some farmers and contributed to better food availability, it has also created significant challenges such as increased competition from imports, rising input and output prices, and the negative effects on local agricultural businesses which needs a nuanced approach to market liberalization. More so, the study concludes that while policy reforms have generally led to increased government funding, improved agricultural productivity, and enhanced food security, there are notable challenges (subsidy reductions, market liberalization, and the role of government) in the implementation and impact of these reforms. In line with the study conclusions, the researcher made recommendations and future study suggestions.

Keywords: Sustainable Policies, Agricultural Input Subsidy, Market Liberalization, Smallholder Farmers, Policy Reforms, Choma, Productivity

Introduction

Agricultural policy in Zambia is crucial for both urban and rural populations, impacting small businesses and multinational corporations alike. The government uses public policy to direct investments and redistribute resources, aiming for equity and efficiency (Hyman, 2014; Mikesell, 2013) [23, 28]. Agriculture plays a dominant role in Zambia's economy, being the main source of income, food security, and nutrition. The government prioritizes this sector through public expenditure to boost grain production (Babbie, E. 2010).

Zambia's agricultural production includes crop production, livestock rearing, and fishery, with maize constituting over 70% of the total output CSO (2020) [11]. Other crops like sorghum, millet, and cassava cater to domestic consumption, while sugar, soybeans, coffee, rice, cotton, and horticultural produce are mainly for export. However, reliance on maize introduces risks such as climate change impacts, pest outbreaks, and market price fluctuations.

Agriculture employs about 70% of Zambia's labor force and contributes around 20% to the GDP. The sector faces challenges like climate change, soil degradation, water scarcity, and limited access to markets and finance. Small-scale farmers, who make up 80% of the farming population, struggle with access to inputs, credit, and markets (National Agriculture Report, 2023) [30].

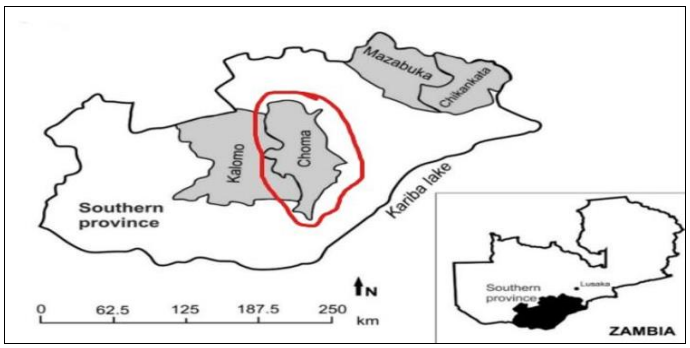
To address these challenges, the Zambian government has implemented sustainable agricultural policies promoting environmentally friendly, socially equitable, and economically viable practices. Despite these efforts, the effectiveness of these policies remains unclear in some regions. The agricultural sector is vital for Zambia's socio-economic structure, influencing the livelihoods of 8 out of 10 Zambians. However, the sector's productivity is below its potential, with significant yield gaps, particularly in maize production. Improving agricultural productivity is essential for sustainable economic growth and poverty reduction in Zambia (Banda, 2018) [3].

Despite various sustainable agricultural policies in Zambia, the sector faces challenges like low productivity, environmental degradation, and limited economic benefits for small-scale farmers. The effectiveness of these policies remains unclear, necessitating empirical evaluations to optimize government interventions (National Agriculture Report, 2023) [30].

The objectives of this research was to evaluate the effectiveness of existing agricultural policies in promoting sustainable agricultural activities in Zambia by assessing the impact of Agricultural Input Subsidy programs on smallholder farmers and the overall agricultural sector, analyzing the effects of market liberalization on agricultural productivity and food security and investigating the implications of policy reforms on government resource allocation to agriculture and sector performance.

The researcher asked questions such as: what is the impact of Agricultural Input Subsidy programs on smallholder farmers and the overall agricultural sector? What effect does market liberalization have on agricultural productivity and food security? What implications do policy reforms have on government resource allocation to agriculture and sector performance? To examines how market liberalization affects agricultural productivity and food security, provides insights into the effectiveness of Agricultural Input Subsidy Programs (AISP) on farm productivity and sustainability, investigates the implications of policy reforms on resource allocation, aiding in better prioritization and support for the agricultural sector and assesses the impact of interventions on smallholder farmers, contributing to poverty reduction and rural development (Benson, T., Manda, J., & Kachule, R. 2008) [5].

The focus was on evaluating sustainable agricultural policies in Zambia, particularly in Choma District, Southern Province. It examines Agricultural Input Subsidy Programs, market liberalization, and policy reforms, with an emphasis on smallholder farmers. Broader issues related to agricultural policy are not addressed.



Source: Researcher, 2024

Fig 1: Map showing study site

Litterature Review

Numerous studies on sustainable agriculture policies highlight the varied impacts of different approaches globally:

Road Infrastructure

Research from Sierra Leonne shows that improved road infrastructure can lower market prices of local produce by reducing search frictions. However, the effectiveness of such programs depends on specific contexts. In India, a national rural road construction program did not enhance agricultural outcomes but facilitated migration away from agriculture, suggesting the need for Zambia-specific research on this relationship (Tamru *et al*, 2022) [33].

NCD Prevention

Unhealthy foods and tobacco are leading causes of non-communicable diseases (NCDs). Policies need to influence agricultural production towards healthier options, but there is limited research bridging agriculture and public health to address the supply of healthy commodities (Jayne *et al*., 2010) [27].

Agricultural Input Subsidy Programs

These programs aim to boost production, improve food security, and enhance rural livelihoods by providing subsidized inputs like seeds and fertilizers (Guillemin, M., & Gillam, L. 2004) [22].. In Zambia, the Agricultural Input Subsidy Program (AISP) has increased maize production but faces challenges like inefficiencies, corruption, and poor targeting. Critics argue that subsidies can lead to market distortions and dependency on government support (World Bank, 2018).

Market Liberalization

This involves removing government controls over agricultural markets to promote free-market mechanisms. While it can increase productivity by fostering competition and innovation, it can also lead to price volatility and negatively impact food security for smallholder farmers. In

Zambia, maize market liberalization led to significant price fluctuations, affecting food security in rural areas (Benson *et al*., 2008) [5].

Policy Reforms

These aim to improve efficiency, sector performance, and resource allocation. In Zambia, recent reforms have increased government investment in agriculture but have had mixed impacts due to inefficient resource allocation and competing priorities. Sustainable investments in infrastructure, market access, and climate resilience are needed to enhance food security and support smallholder farmers. Transparency and accountability in government spending are also crucial for effective policy implementation (FAO, 2016).

Global Literature on Agricultural Policies

The global literature on sustainable agricultural policies highlights the complex interactions between input subsidy programs, market liberalization, and policy reforms in influencing agricultural productivity and food security. In Zambia, the Agricultural Input Subsidy Program has shown positive short-term production effects but struggles with inefficiency and sustainability. Market liberalization has fostered competition and innovation but has had mixed impacts on food security, especially for vulnerable smallholder farmers. Policy reforms aimed at better government resource allocation are crucial, but their success hinges on efficient implementation, transparency, and long-term investments in rural infrastructure and market systems.

Studies on enhancing credit accessibility for SMEs in developing countries show increased investment, particularly among smaller SMEs. For smallholder farmers, uninsured risk is a significant factor in under-investment. In Ghana, rainfall insurance significantly boosted farmer investments more than cash grants, a finding relevant to Zambia where weather insurance is common.

According to Mushoriwa (2021) [29] restrictive measures like export bans can temporarily improve food security but eventually reduce farmer income and long-term food supply due to decreased production incentives.

Policies responding to social circumstances, such as Zimbabwe's subsidy program providing credits via e-vouchers, have been implemented to address farmers' access to inputs.

Environmental conditions drive policy changes, with governments promoting bio fuel crop production due to rising demand for sustainable fuel sources (Jayne at al, 2010) [27].

Studies on input support programs show mixed results, with some indicating higher yields and others showing inefficiency and poor-quality inputs as limiting factors (Chirwa, E. W., 2012) [7].

Reducing input subsidies generally lowers productivity, while reducing import tariffs on industrial inputs can negatively impact agricultural production (Alia *et al*., 2017 and Fraser, 2006) [1].

Output support policies, like price incentives, can increase production and crop diversification, as seen in Benin's cotton production.

Technical support policies, including extension services and infrastructure investment, have mixed impacts on production, with factors like service quality and frequency influencing outcomes (Benson, T., & Elbadawi, I. 2002) [4].

Overall, the literature underscores the need for nuanced and context-specific policies to address the diverse challenges and opportunities in the agricultural sector.

Research Methodology

This research design which used a mixed method, which is appropriate for exploring the existing agricultural policies in promoting sustainable agricultural activities (Robson, 2011). Qualitative descriptive design was used to describe variables in determining research objectives while quantitative design was used to determine the impact of variables. The study was conducted in Choma District in Southern Province. Choma is a provincial capital for Southern Province located off Lusaka Livingstone road. It has numerous agricultural activities that usually take place annually. (Ihaji, 2021) [25]

The target population for this study includes small holder farmers as the recipient or implementers of agricultural policies and key policy makers as informants. Other key stakeholders who possess knowledge and experience regarding policies in promoting agricultural activities will be involved (Denscombe, M. 2014) [13].

The study used purposeful sampling technique as it only selected experienced farmers in the specific period of three years (2021 to 2023). This criteria enabled the researcher to examine objectives in order to trace agricultural policy changes for a specific period given.

The study was based on primary data from farmers, policy makers and other stake holders and secondary data collected from various publications on agricultural policies (Chisanga, B., *et al*., 2020).

A research questionnaire was used to obtain formation from small holder farmers, policy makers and as stake holders as respondents of the study (Braun, V., & Clarke, V., 2006) [6]. Documents were also used as a research tool as different publications on agricultural policies for specific given period were analyzed in line with research objectives (Dorward, A., Kydd, J., & Poulton, C., 2008) [15]. Research questionnaire data were analyzed descriptively to meet research objectives using descriptive statistics (OECD, 2019) [32]. Documents (publications on agricultural policies) were analyzed descriptively and quantitatively to determine research objectives using Statistical Packages for Social Sciences (SPSS). Thus, patterns and themes were derived from research questionnaires and further interpretation were be made. Research approval was obtained from the researcher's institution. Once permission was granted, ethical considerations were addressed throughout the research process to ensure the protection of participants' rights, confidentiality, and informed consent. Anonymity and confidentiality was maintained, and personal data was protected. The research design and methods were be approved by the relevant ethical review board before data collection begins.

Results/ Findings

Table 1: Gender Distribution

Gender	Frequency	Percentage (%)
Male	11	37 %
Female	19	63 %
Total	**30**	**100%**

Source: Field data, 2024

The table 1 provides the gender distribution of a sample. There are 11 males in the sample, which accounts for 37% and 19 females in the sample, which accounts for 63% of the total participants.

Table 2: Age Distribution

Age Range	Frequency	Percentage (%)
18 - 30 years	5	16.7%
31 - 40 years	7	23.3%
41 - 50 years	8	26.7%
51 - 60 years	6	20%
61 years and above	4	13.3%
Total	**30**	**100%**

Source: field data, 2024

According to table 2, the 41 - 50 years age group is the most common, with 26.7% of participants falling within this range. The 18 - 30 years and 61 years and above groups have the least representation, with only 16.7% and 13.3%, respectively. There is a generally even distribution across the middle age ranges (31-40 years, 41-50 years, and 51-60 years), with these groups together accounting for 70% of the sample.

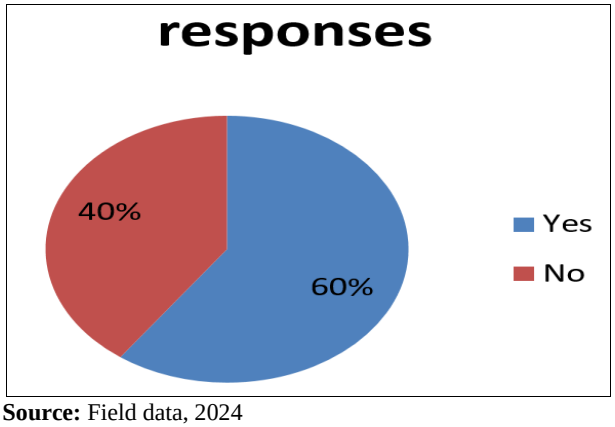
Table 3: Years of farming experience

Years of Farming Experience	Frequency	Percentage (%)
1 - 5 years	6	20%
6 - 10 years	8	26.7%
11 - 20 years	10	33.3%
21 - 30 years	4	13.3%
31 years and above	2	6.7%
Total	**30**	**100%**

Source: Field data, 2024

The table above shows that the largest group is those with 11-20 years of farming experience, which makes up 33.3% of the sample. This suggests that a significant proportion of participants is fairly experienced in farming but may still be in the middle stages of their careers.

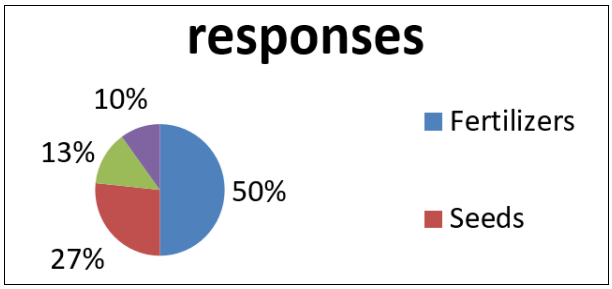
4.3 Agricultural Input Subsidy Programs on Smallholder Farmers



Source: Field data, 2024

Fig 1: Benefits from an Agricultural Input Subsidy Program in the Past 5 Years

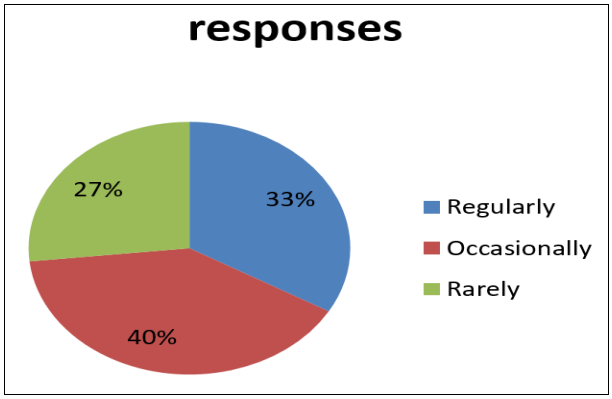
The figure above shows that the majority of respondents (60%) have benefited from an Agricultural Input Subsidy program in the past 5 years. This suggests that the program may be reaching a significant portion of the target population. A smaller group, 40%, have not benefited from the subsidy. While this is a sizable portion, it indicates that nearly half of the population may not be accessing or utilizing the subsidy program.



Source: Field Data, 2024

Fig 2: Subsidized inputs farmers frequently use

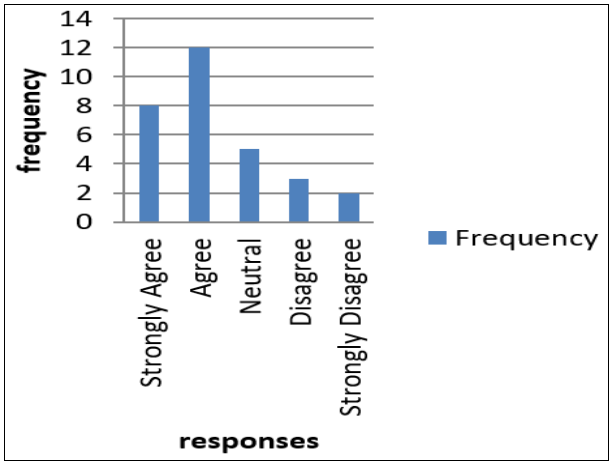
The figure above shows that 50% of respondents report using fertilizers most frequently. 27% of respondents use seeds most frequently. Only 13% of respondents use irrigation equipment most frequently. 10% of respondents use other inputs such as pesticides most frequently.



Source: Field Data, 2024

Fig 3: How often do farmers receive subsidized inputs

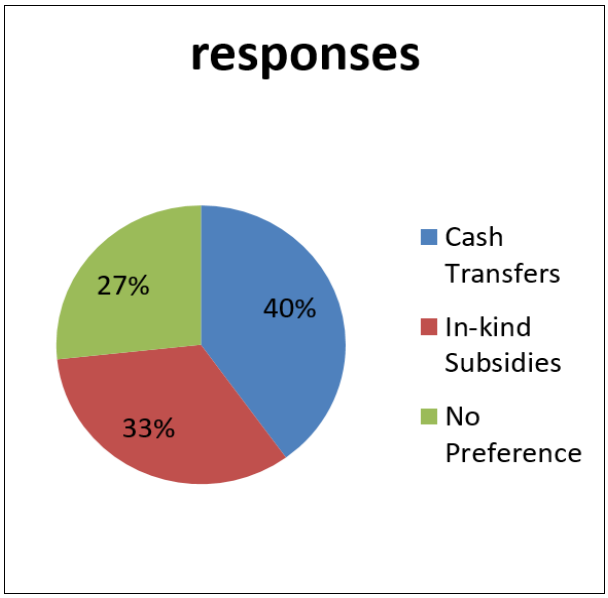
The figure above shows that the largest group of respondents (40%) report receiving subsidized inputs occasionally. This suggests that a significant portion of the population benefits from the subsidy program, but not on a consistent, regular basis.



Source: Field Data, 2024

Fig 4: Views on Agricultural Input Subsidy programs increasing crop yields

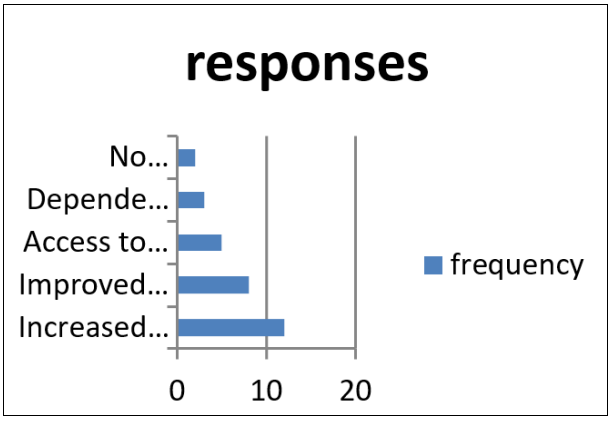
The figure above shows that a majority of respondents (26.7% + 40% = 66.7%) believe that Agricultural Input Subsidy programs have increased their crop yields.



Source: Field Data 2024

Fig 5: Farmers` preference of cash transfers or in-kind subsidies for agricultural inputs

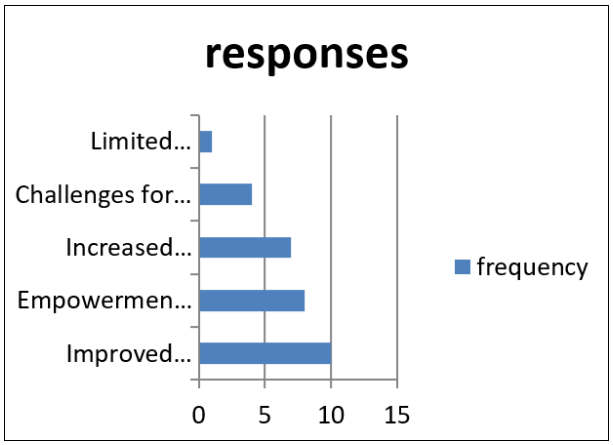
The above figure shows that the majority of respondents (40%) prefer cash transfers. However, a significant portion (33.3%) still prefers the certainty of in-kind subsidies.



Source: Field Data 2024

Fig 6: How Agricultural Input Subsidy programs affect farming practices and productivity

The figure above shows that 40% reported significant yield increases due to subsidized inputs, particularly fertilizers. 26.7% reported that subsidized seeds and other inputs led to better planting techniques and farming methods. 16.7% revealed that gaining access to previously unaffordable inputs improves overall productivity. 10% expressed concern about relying too heavily on subsidies, citing timing issues. 6.7% reported no substantial impact due to other challenges, such as water shortages.



Source: field data 2024

Fig 7: Agricultural Input Subsidy programs impact the livelihoods of smallholder farmers, particularly women and vulnerable groups

According to the above figure, the majority of respondents (40%) have noted increased yields as a result of subsidized inputs, especially fertilizers, which has led to more productive farming practices. 26.7% of respondents indicated that their farming practices have improved, particularly with access to better seeds and inputs. 10% of respondents reported increased dependence on subsidies and challenges when the inputs are delayed. This suggests that while the subsidy program is beneficial, it has some logistical issues, especially regarding the timeliness of input distribution.

4.4 Market Liberalization on Agricultural Productivity and Food Security

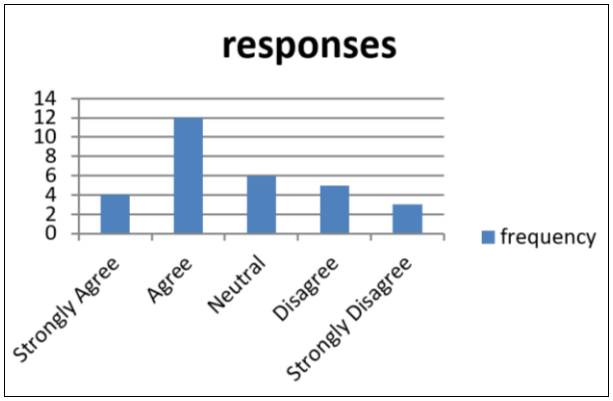


Fig 8: whether market liberalization has increased agricultural productivity

The above figure shows that 53.33% (Strongly Agree + Agree) of respondents believe market liberalization increased agricultural productivity. 20% of respondents remain neutral, indicating uncertainty or lack of information. 26.67% (Disagree + Strongly Disagree) of respondents disagree with the statement.

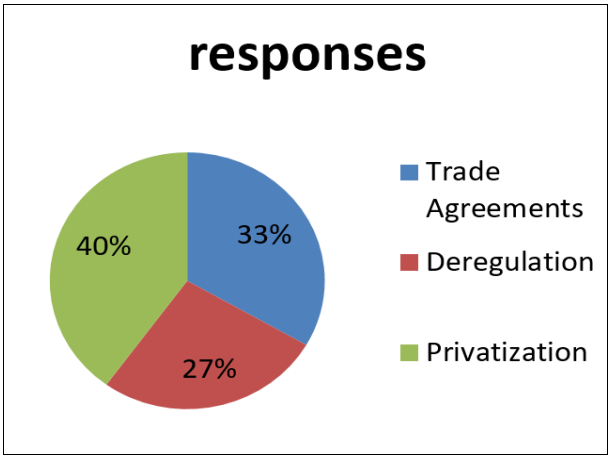


Fig 9: Market liberalization policies that has mostly impacted farming businesses

According to the figure above, privatization has had the most significant impact (40%) on farming businesses. Trade agreements (33%) and deregulation (27%) follow closely, indicating notable effects.

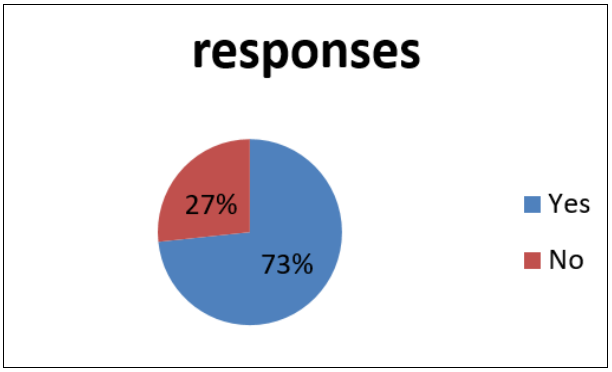


Figure 10: Whether there gas been increased competition from imported agricultural products

The figure above shows that 73% of respondents reported increased competition from imported agricultural products. 27% of respondents have not experienced increased competition.

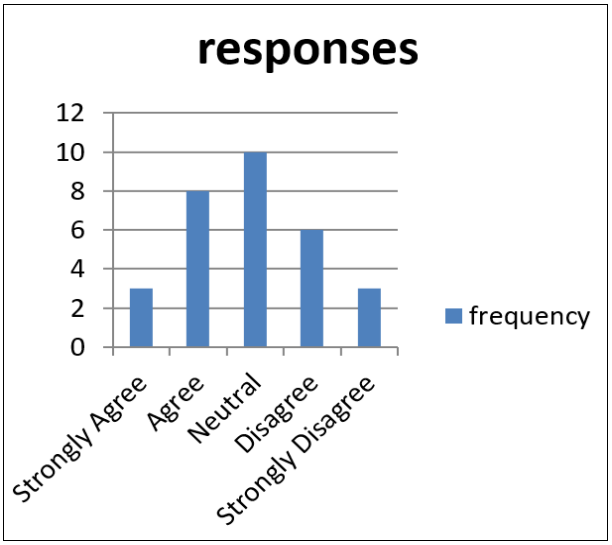


Fig 11: Whether market liberalization has improved food availability

The above figure shows that responses are spread across all categories, indicating diverse perspectives. 33.33% of respondents are undecided or see no clear impact. 36.67% (Strongly Agree + Agree) believe market liberalization improved food availability, while 30% (Disagree + Strongly Disagree) disagree.

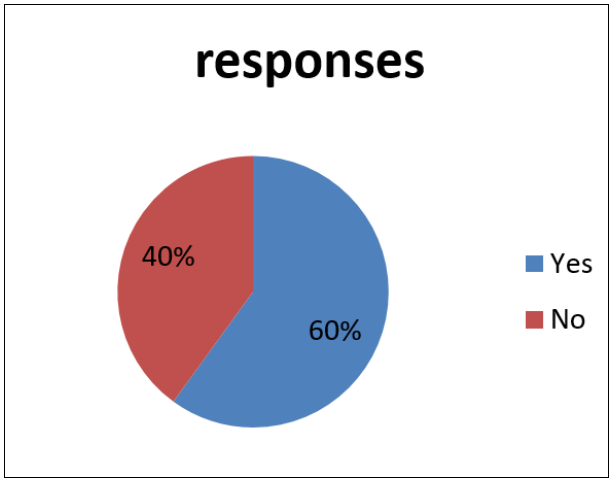


Fig 12: Whether respondents would support protectionist policies to safeguard local agricultural production

According to the figure above, 60% of respondents favor protectionist policies to safeguard local agricultural production. 40% of respondents oppose protectionist policies.

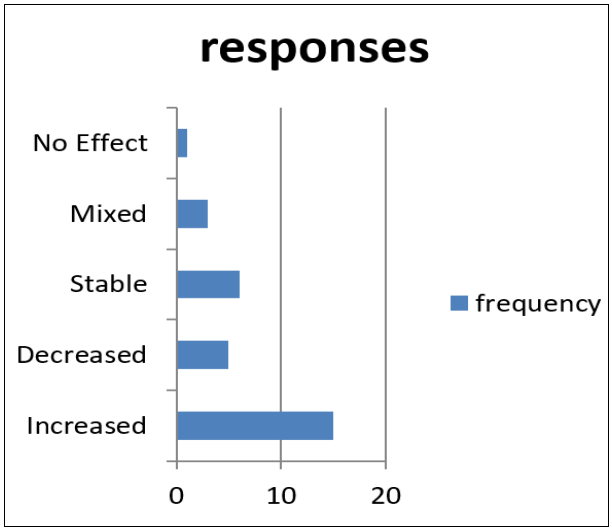


Fig 13: How market liberalization has affected the prices of agricultural inputs and outputs

The above figure shows that the majority (50%) of respondents reported that market liberalization has increased the prices of agricultural inputs and outputs. This suggests that, overall; market liberalization might have led to higher costs for farmers, possibly due to market forces driving up prices of key agricultural goods.

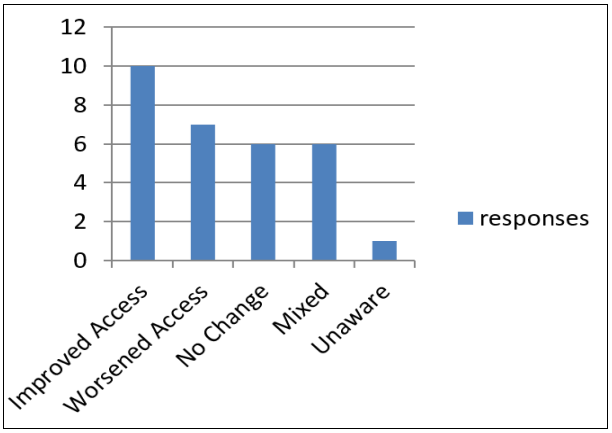


Fig 14: The impact market liberalization has had on smallholder farmers' access to markets and market information

The figure shows that a significant proportion (33.33%) of respondents felt that market liberalization has improved their access to markets and market information, possibly due to the reduction of state control and increased market competition.

4.5 Policy Reforms on Government Resource Allocation to Agriculture and Sector Performance

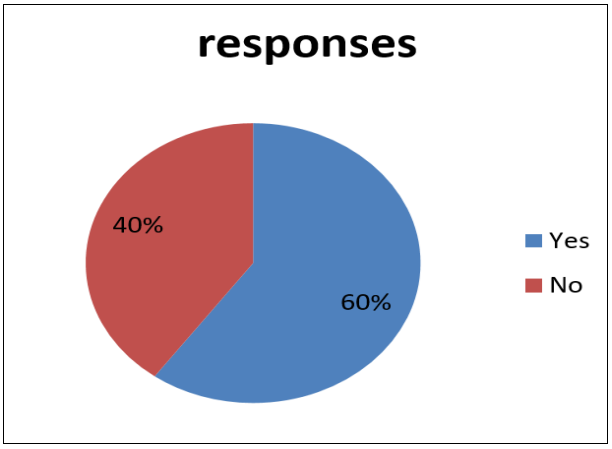


Fig 15: Whether policy reforms have increased government funding for agriculture

The above figure shows that 60% of respondents believe that policy reforms have increased government funding for agriculture. 40% of respondents disagree, believing that despite policy reforms, government funding has not increased.

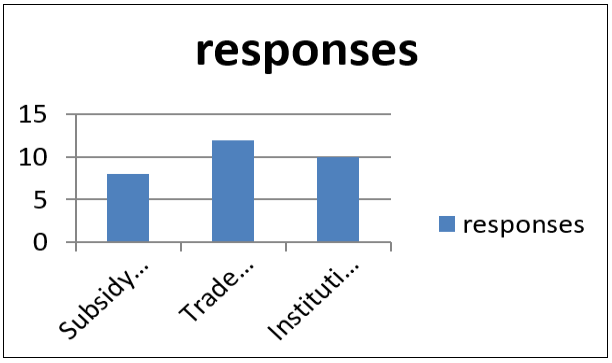


Fig 16: Policy reforms which have mostly impacted agricultural sector performance

40% of respondents believe that trade liberalization has had the most impact on agricultural sector performance. This could reflect how opening up markets and reducing trade barriers has enhanced access to both local and international markets for agricultural goods.

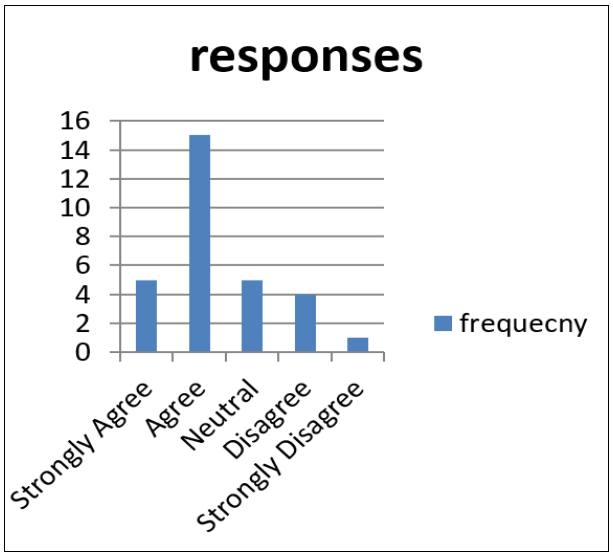


Fig 17: Whether policy reforms have improved agricultural productivity

The figure shows that 50% of respondents agree that policy reforms have improved agricultural productivity, suggesting that farmers have seen positive outcomes from reforms in areas such as subsidies, market access, and institutional changes.

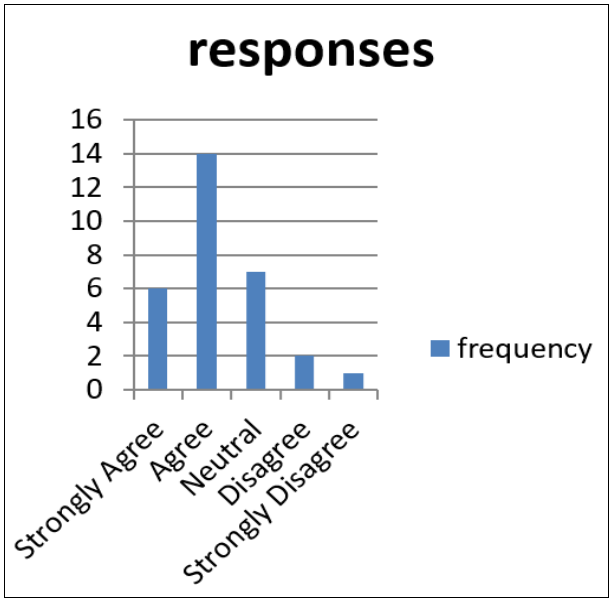


Fig 18: Whether Policy Reforms have Enhanced Food Security

The figure shows that 46.67% of respondents agree that policy reforms have improved food security, suggesting that reforms such as market liberalization, subsidy shifts, and institutional changes have had a positive impact on food availability and access.

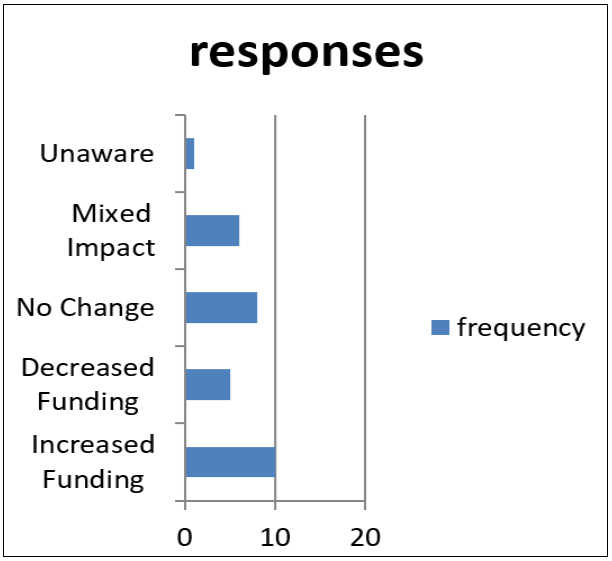


Fig 19: How Recent Policy Reforms Affected Government Funding for Agricultural Programs and Initiatives

The figure shows that 33.33% of respondents report that policy reforms have increased funding for agricultural programs. 26.67% report no change. 16.67% believe funding has decreased. A 20% response for mixed impact. 3.33% of respondents are unaware.

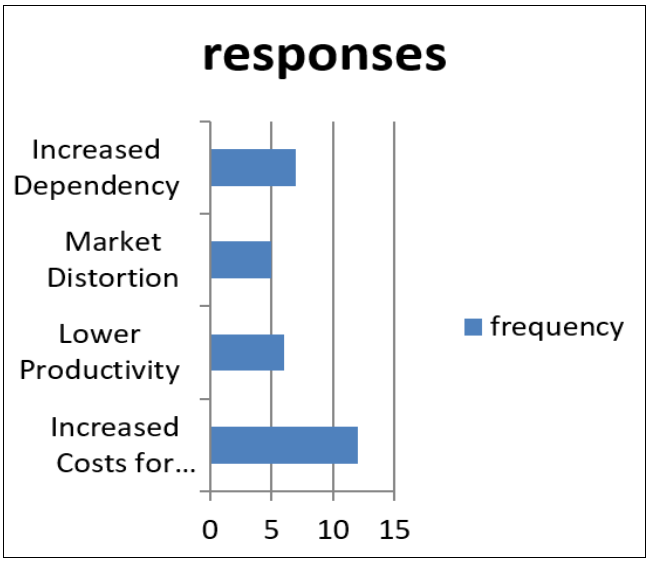


Fig 20: Potential Consequences of Reducing Government Subsidies for Agricultural Inputs

The figure shows that most respondents (34.3%) expect reduced subsidies to increase costs for farmers. 17.1% anticipate lower productivity due to reduced subsidies. 14.3% worry about market distortion, potentially leading to unfair competition. 20% believe reducing subsidies will increase farmers' dependency on other forms of support.

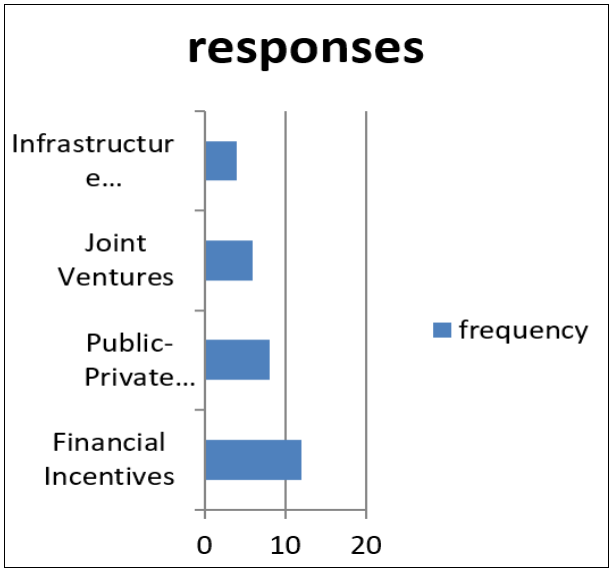


Fig 21: How Policy Reforms can Promote Public-Private Partnerships in Agricultural Development

The above figure shows that most respondents (40%) believe financial incentives are crucial for promoting public-private partnerships. 26.67% emphasize the importance of regular dialogue between public and private sectors. 20% suggest joint ventures as an effective strategy. 13.33% prioritize infrastructure development.The study delves into the demographic characteristics of Zambia's agricultural sector, revealing that female farmers, middle-aged individuals, and those with moderate experience dominate the landscape. This highlights the necessity for gender-responsive and age-appropriate policies. The study emphasizes that agricultural policies must address the unique challenges faced by these groups, focusing on enhancing access to resources, training, and market opportunities. Additionally, attracting younger farmers and retaining experienced ones is crucial for the long-term sustainability of Zambia's agricultural sector. By aligning policy interventions with the demographic profile of farmers, Zambia can build a more inclusive, resilient, and sustainable agricultural system.

Conclusions

This study underscores the importance of Agricultural Input Subsidy programs in enhancing the productivity and livelihoods of smallholder farmers in Zambia. These programs have significantly increased crop yields and empowered women. However, challenges such as gaps in accessibility, logistical issues in distribution, and over-reliance on subsidies need to be addressed to ensure long-term sustainability (Chirwa, 2013). To maximize the effectiveness of these programs, policymakers should focus on improving input distribution systems, increasing the flexibility of subsidies, and ensuring better access for

vulnerable groups like women and the elderly. Additionally, addressing broader agricultural challenges such as irrigation infrastructure, financial literacy, and soil conservation is crucial for promoting sustainable agricultural practices in the long run (Chomba, S., *et al*., 2020) [9].

The research highlights the complex impact of market liberalization on agricultural productivity and food security in Zambia. While market liberalization has improved productivity for some farmers and contributed to better food availability, it has also created significant challenges such as increased competition from imports, rising input and output prices, and negative effects on local agricultural businesses. To optimize the benefits of market liberalization, Zambia should consider a balanced policy approach that combines liberalization with targeted protectionist measures. This could include tariffs on imported agricultural products, subsidies for smallholder farmers, and investments in rural infrastructure to improve market access. Strengthening market information systems and improving access to affordable inputs will help smallholder farmers navigate the challenges of a liberalized market.

The study provides valuable insights into the effects of policy reforms on agricultural performance and food security in Zambia. While policy reforms have generally led to increased government funding, improved productivity, and enhanced food security, there are notable challenges in their implementation and impact. These include subsidy reductions, market liberalization, and the role of government funding (Allen, M. & Tommasi, P., 2001) [2]. For Zambia to achieve sustainable agricultural growth and food security, it is essential that policy reforms are complemented by continued investments in infrastructure, access to credit, and capacity building for smallholder farmers. Public-private partnerships must be nurtured to drive innovation and increase resource allocation. Policies must be adaptive, ensuring that the benefits of market liberalization and subsidy reductions are balanced with support mechanisms that safeguard the interests of vulnerable populations.

Recommendations

Based on these conclusions, the study makes several recommendations:

- ✓ Implement gender-responsive agricultural policies to support women in agriculture.
- ✓ Provide age-appropriate training and support for middle-aged farmers.
- ✓ Increase the flexibility of subsidy programs to better suit diverse farmer needs.
- ✓ Adopt a balanced approach to market liberalization that integrates both market freedom and protectionist measures.
- ✓ Tailor policy reforms to address the specific needs of smallholder farmers.
- ✓ Strengthen public-private partnerships to drive innovation and boost resource allocation in the agricultural sector.

For future research, the study suggests exploring factors influencing younger generations' participation in agriculture, examining the long-term impact of demographic changes on agricultural sustainability, investigating the long-term effects of Agricultural Input Subsidy programs, focusing on the impact of subsidy programs on vulnerable groups, and studying the long-term impact of market liberalization on smallholder farmers.

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