

Review Article

# A Review of the Government Food Policy on Agricultural Productivity in Ghana

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## Abstract

Food policy supports agriculture and household food security by encouraging farmers to increase output. Despite implementing the Planting for Food and Jobs program in Ghana, the country still imports staple crops, suggesting mixed effectiveness. This study analyzed challenges, beneficiary perceptions, and policy impacts on agricultural productivity using secondary data from Sekyere Kumawu District, Ashanti Region, Ghana. Ghanaian beneficiaries were older and educated, had smaller households, and had less experience on larger plots. The Ghanaian farmers received improved seeds, fertilizers, and subsidized seeds. The farmers viewed the food program positively regarding food security. Key challenges PFJ faced were funding, resource allocation, implementation, environmental factors, post-harvest losses, market access, and economic challenges. Both programs positively impacted crop productivity. Agricultural policy recommendations include providing suitable machinery, ensuring access to high-quality seeds, adjusting production targets, prioritizing comprehensive training, improving stakeholder collaboration, and switching from indirect to direct subsidies can enhance food policy efficiency in Ghana.

## Keywords

Food Policy, Government, Input Subsidy, PFJ, Agricultural Productivity

## 1. Introduction

One of the United Nations' policy objectives regarding social welfare is guiding countries toward sustainable development and improved livelihoods. These international policy goals address poverty reduction, zero hunger, inequality, climate change, and environmental degradation. SDG 2 aims to end hunger, ensure food security, eradicate malnutrition, and boost the agricultural productivity of smallholder farmers in developing countries [1]. Zero hunger is vital because food is essential for human survival [2]. Achieving these goals by 2030 requires agricultural policies from governments and Non-Governmental Organizations (NGOs) to support sus-

tainable food production and ensure food security [3].

Government intervention in the agricultural sector, through input subsidies, price controls, and extension support, enhances food production and productivity, leading to increased food self-sufficiency, socio-economic growth, lower food prices, and higher labor wages [4, 5]. Food self-sufficiency is crucial for developing countries to meet domestic food demands through local production, strengthening the domestic farm sector, and reducing reliance on foreign food supplies [6, 7]. Ghana faces food sufficiency and sustainability challenges despite being an agrarian country. Implementing the agricul-

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tural policy of Planting for Food and Jobs (PFJ) would enhance food production, increasing food security and self-sufficiency.

The government of Ghana implemented the PFJ policy (2015-2019) to enhance food production by increasing cultivated area and productivity [8]. This food policy aims to support agriculture and ensure household food security through government regulations and programs that promote access to safe, affordable, and nutritious food. The Ghanaian government asserts the importance of the food program for boosting production, productivity, farmers' income, and national food security. However, Ghana still imports staple foods like rice, maize, and soybeans, indicating the policy did not fully achieve its goals and objectives [3]. It is essential to examine the policy's micro-level impact on farmers and identify obstacles to self-sufficiency in these staples. Research shows mixed results on the impact of input subsidies on food production and productivity [9, 10].

Studies in Ghana have assessed the impact of government input subsidies on crop yield. The challenges identified include recycling old policies, delayed input supply of poor-quality seeds, insufficient fertilizers, limited extension services, and a cumbersome registration process [13] with reports of political discrimination [14, 15]. Previous studies show mixed results on the effectiveness of input subsidies in boosting agricultural productivity, leaving a debate among researchers and policymakers. This review aims to determine the impact of government food policy on productivity in Ghana, focusing on beneficiary characteristics, perceptions, challenges, and the impact on agricultural productivity. The findings will help stakeholders improve productivity, food security, and the welfare of smallholder farmers, and contribute to empirical evidence on the PFJ program's perceptions and impacts.

## 2. Materials and Methods

This study utilized a literature review to describe concepts, findings, and materials from sources as a foundation for research. Secondary data was collected from Ministry of Food

and Agriculture websites, World Bank websites, research articles, newspapers, and magazines [16, 17]. Case studies were conducted in the agricultural zone of Sekyere Kumawu District, Ashanti Region, Ghana, involved in food programs from 2017–2022. Sekyere Kumawu District spans 1,500.6 square kilometers, accounting for 6.2% of the Ashanti Region, with major rainy seasons from March to July and minor seasons from mid-September to November. The district, with a population of 64,396 (52% female, 48% male), has high humidity and focuses on crops like maize, cassava, plantain, cocoyam, cocoa, and oil palm, with maize significantly employing the agricultural workforce [18, 19]. Data was analyzed using descriptive statistics such as mean, frequency, and percentage, and a perception index was computed to understand beneficiaries' perceptions of food programs.

$$PI = \sum_{i=j}^n \frac{U_{ij} \times S_j}{\text{Scale values}}$$

Where: PI is the perception index of the  $i^{th}$  beneficiary of the food program,  $U_{ij}$  is the unit score of the  $i^{th}$  beneficiary on the  $j^{th}$  component and  $S_j$  is the scale value of the  $j^{th}$  component. The responses were measured on a five-point Likert scale where farmers could choose the following options: strongly disagree, disagree, neutral, agree, and strongly agree.

## Conceptual Framework of Government Food Policy

The primary crops for food programs were rice, maize, and soybeans, supported by input subsidies, fertilizers, and agricultural extension services, which enhanced food production and sustainability. The program aims to boost food production, ensure food security, and improve household income for smallholder beneficiaries. Government policy instruments included input subsidies, improved seeds, fertilizers, market opportunities, and agricultural extension services. Figure 1 illustrates the conceptual framework of the government food policy in Ghana.

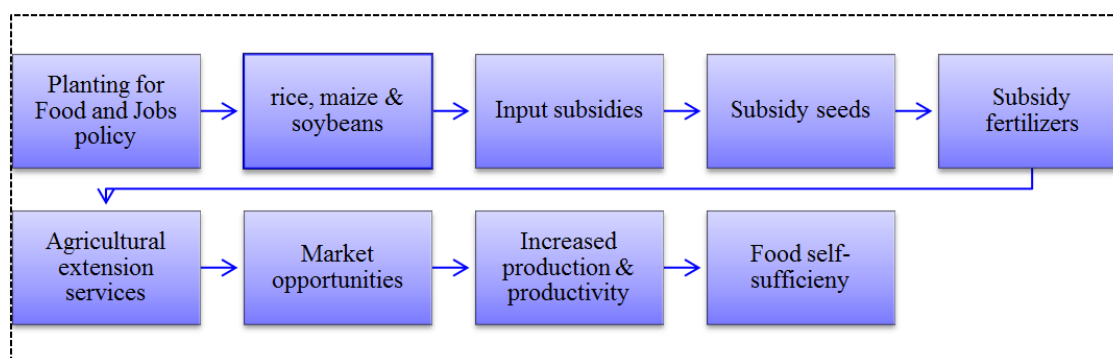


Figure 1. Conceptual framework of the PFJ food policy in Ghana.

### 3. Results and Discussion

#### 3.1. Overview of the Agriculture Sector in Ghana

The agriculture sector is crucial for economic development in developing countries, contributing significantly to GDP and employment. The agricultural sector in Ghana is at the heart of the country's economy, contributing approximately 20% to the GDP and employing 45% of the workforce and the agricultural growth rate was 6.3% in 2019 [21]. Ghana primarily depends on cereal crops such as rice and maize as their main staple foods which play a significant role in promoting national food security, considering their respective role in fulfilling people's dietary needs and livelihoods. These roles would continue to grow with an increase in demand for food driven by population growth, and thus promoting the production of food crops is essential to ensure national food security in the future.

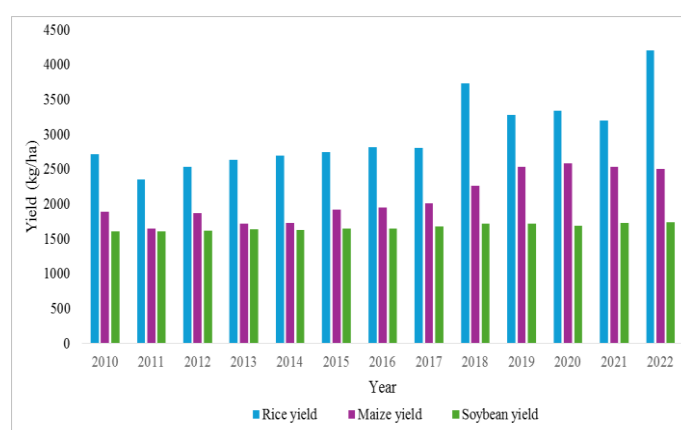
#### 3.2. Agricultural Food Policy

Agricultural policy is a government intervention in the agriculture sector that is crucial for sustainable agricultural development, and increased food security [22]. Government policy in agriculture significantly impacts the sector, influencing growth, investments, and competitiveness [23]. Government policies such as infrastructure investment, and agricultural development support enhance production, productivity, and farmers' social welfare at various levels, benefiting firms and consumers [24]. Most often, governments use agricultural policy instruments such as input subsidies, land tenure, price controls, farm support prices, input markets, and public food storage to increase food production systems [25]. Agricultural input subsidies aim to increase crop yields and food production [13, 26]. In the economic context, farm-subsidized inputs are government policies providing financial support to farmers to keep input prices low or at

affordable prices. The agricultural input subsidy policy increases marginalized farmers' purchasing powers, agricultural productivity, and income [27]. The Ministry of Agriculture implemented a program providing smallholder farmers with government subsidies for seeds, fertilizers, market opportunities, and agricultural extension services [11]. Implementing an input subsidy policy significantly impacts agricultural growth in developing countries [13].

##### 3.2.1. Planting for Foods and Jobs (PFJ) Policy in Ghana

In 2017, Ghana's government launched the Planting for Foods and Jobs (PFJ) policy to address the declining growth in agriculture [7]. The program aimed to boost food production and ensure food security, focusing on five pillars: subsidized improved seeds (50%), subsidized fertilizer, free extension services, market opportunities post-harvest, and E-Agriculture for monitoring farm activities [15]. The main crops targeted were maize, rice, soybeans, sorghum, and vegetables. To achieve self-sufficiency and surplus for export, PFJ supported the Youth in Agriculture Programme [8]. The policy encouraged farmers to use certified seeds and fertilizers through a private sector-led marketing framework, enhancing input use, agronomic practices, and output marketing via the E-Agriculture platform [30]. PFJ provided beneficiaries with knowledge and skills to maximize subsidized inputs through accessible extension services [13]. The program's success is measured by productivity and income improvements. In 2018, yields of targeted crops increased significantly: maize by 89% (1.8mt/ha to 3.4mt/ha), rice (2.7mt/ha to 4mt/ha), and soybeans (1mt/ha to 3mt/ha). Estimated job creation was 746,601 in 2017 and 794,944 in 2018 [31]. Agricultural Gross Domestic Product (GDP) rose from 2.9% in 2016 to 6.1% in 2017, with a growth rate of 4.8% in 2018, projected to reach 6.9% in 2019 [31]. Figure 2 illustrates crop productivity in Ghana from 2010 to 2022. Crop productivity experienced massive increments before and after the implementation of the food policy



Source: FAOSTAT, 2024

Figure 2. Crop productivity in Ghana from 2010-2022.

Table 1 presents the quantity of seeds and fertilizers distributed from the PFJ from 2017 to 2019 with the target quantities and achieved quantities. The achieved rice distributed in 2017 was 1,942 mt, 3,286.36 mt in 2018 and 4,283 mt while rice was 1,698 mt in 2017, 2,399.14 mt in 2018, and 6,106 mt in 2019. The total achieved soya bean distributed in 2017 was 147 mt, 338.98 mt in 2018 and 2,268 mt in 2019. The total of the actual fertilizer distributed in 2017 was

291,021 mt, 305,000 mt in 2018 and 295,590 mt in 2019. Nitrogen Potassium Calcium (NPK) fertilizers were distributed more than other fertilizers such as urea, and organic fertilizers. Approximately 202,860 farmers benefited from the PFJ in the 2017 program which increased to 677,000 in 2018 and to 1,183,000 in 2019. The PFJ program created 863,500 jobs for the citizens in 2017, 1,036,200 in 2018, and 1,243,440 in 2019 [31].

**Table 1.** Quantity of seeds and fertilizers distributed for PFJ from 2017-2019.

Quantity distributed	2017		2018		2019	
Item	Target	Achieved	Target	Achieved	Target	Achieved
Maize hybrid (mt)	700	427.6	1,500	742.87	4,122	3,071
Maize OPV (mt)	2,960	1,942	4,000	3,286.36	5,206	4,283
Rice (mt)	2,198	1,698	3,000	2,399.14	7,105	6,106
Soybean (mt)	148	147	1,000	338.98	2,951	2,268
NPK (mt)	224,000	194,012	188,000	167,187	248,100	209,490
UREA (mt)	112,000	97,009	97,000	75,830	82,900	78,250
Organic (granular)	0	0	4,000	1,998.00	4,000	3,977
Organic (liquid)	0	0	12,000	267	2,200	771
Organic (compost)	0	0	4,000	1,812	5,000	3,102
Total (mt)	336,000	291,021	305,000	247,094	342,200	295,590
Beneficiary farmers	202,860	202,860	562,400	677,000	1,123,500	1,183,000
Estimated Job created		863,500		1,036,200		1,243,440

Source: MoFA, 2019

### 3.3. Characteristics of Beneficiaries of Food Policy

Table 2 shows descriptive statistics for food program beneficiaries in Indonesia and Ghana. Indonesian rice farmers average 47 years of age and have an education level of 3.3, equating to junior high school, which enables literacy and comprehension of agricultural information for adopting new technologies. The average farm household size is 3 members, indicating small family units that can assist in rice farming. Beneficiaries have an average of 22 years of experience in rice production, and most farms are under one hectare. Agricultural extension services are received every two months, averaging 5 years annually. Approximately 89% of the rice farmers received subsidy seeds, 29% received fertilizers, 10% received pesticides and 0.9% received farm machinery from the Upsus Pajale food program [3].

In Ghana, the average age of PFJ program beneficiary farmers was 50 years, indicating that most are experienced adult maize farmers, which might facilitate their participation in the food policy program. However, it is essential to encourage more youth to engage in maize production. A typical maize farming household in the Ashanti Region consists of five members, aiding in maize farming, slightly higher than the national average of four members per household [19]. The average education level of maize farmers was seven years, suggesting that many have primary education, allowing them to comprehend food policy information [30]. Educated farmers are more likely to adopt new agricultural innovations and technologies [32]. On average, farmers had contact with extension agents about four times a year, indicating they received advice to improve maize yield. The PFJ program offers improved seeds, fertilizer, extension services, and a ready market. Sixty-seven percent of respondents used improved seeds, showing a preference for them, as farmers believe better seeds lead to higher yields [13]. Sixty-nine percent of

farmers received fertilizers from the PFJ program, and 67% received subsidy seeds, demonstrating the program's positive impact on maize production and productivity in Ghana [33].

**Table 2.** Characteristics of beneficiaries in the food policy study area.

Variable	Ghana
Age of farmer (years)	49.52
Education level	6.97
Farm size (hectare)	2.34
Farming experience	14.77
Household size	4.88
Extension contacts (number)	3.87
Subsidy seeds	0.67
Subsidy fertilizers	0.69
Subsidy machines	0.0
Subsidy pesticides	0.0

Source: Adapted from Pra et al., 2023.

### 3.4. Perceptions of Beneficiaries

#### 3.4.1. Maize Farmers' Perception of PFJ Policy in Ghana

Table 3 illustrates farmers' perceptions of the PFJ program in Ghana. Ninety percent of beneficiaries strongly agree that fertilizer and seed subsidies are timely for maize production, while 92% affirm the high quality of these inputs. Similarly, 88% strongly agree there are sufficient seeds and fertilizers provided by the PFJ program. Ninety-six percent believe the program has improved access to extension services, and 90% agree it has enhanced access to subsidized seeds and fertilizers. Sixty percent reported that the program ensures a readily available market. Most beneficiaries (96%) noted an increase in maize yields due to the PFJ program, and 88% acknowledged the presence of proper grievance mechanisms. The overall perception index has a mean score of 4.4, indicating that 88% of beneficiaries have a positive perception of the PFJ program in Ghana [30].

**Table 3.** Beneficiaries' perception of PFJ in Ghana.

S/No	Statement	Mean score
1	PFJ food program gives beneficiaries subsidy seeds on time	4.5

S/No	Statement	Mean score
2	PFJ food program gives beneficiaries subsidy fertilizers on time	4.4
3	PFJ food program gives beneficiaries quality seeds	4.6
4	PFJ food program gives beneficiaries quality fertilizers	4.6
5	PFJ food program gives an adequate quantity of seeds	4.4
6	PFJ food program gives an adequate quantity of fertilizers	4.4
7	PFJ food program improved access to extension services	4.8
8	PFJ food program enhanced access to seeds	4.5
9	PFJ food program enhanced access to fertilizers	4.5
10	PFJ food program gives a ready market for beneficiaries	3
11	PFJ food program improves crop yield	4.8
12	PFJ food program's proper grievance-handling mechanism	4.4
13	Perception index	4.4

Source: Adapted from Prah et al. 2023

### 3.5. Challenges Facing Food Policy

#### 3.5.1. Key Challenges Facing PFJ in Ghana

##### *Inadequate Funding and Resource Allocation*

A significant challenge for the PFJ program is inadequate government financing. Limited budgets have constrained the program's ability to deliver essential services effectively, leading to failures in various initiatives designed to promote agricultural development [37]. The reduction of subsidies on fertilizers from 36% to 15% has further strained farmers' capacity to maintain food productivity [33].

##### *Poor Policy Implementation*

Poor implementation practices have been highlighted as a critical barrier. The Ministry of Food and Agriculture (MoFA) has been criticized for not adequately addressing the needs of stakeholders along the agricultural supply chain. This oversight has resulted in ineffective program management and failure to meet domestic agricultural demands [38]. Farmers reported issues such as late delivery of inputs, poor-quality seeds, and cumbersome registration processes, which have discouraged participation [30].

##### *Environmental Issues*

Climate change significantly impacts agricultural productivity in Ghana. Unpredictable rainfall patterns, prolonged



droughts, and flooding disrupt planting and harvesting cycles, leading to inconsistent crop yields [38]. These environmental challenges exacerbate food insecurity, despite the PFJ's initial goals of boosting production.

#### *High Post-Harvest Losses*

High rates of post-harvest losses due to inadequate storage facilities and poor transportation infrastructure further undermine the program's objectives. It is estimated that Ghana loses approximately \$1.9 billion annually from post-harvest losses, which diminishes the benefits of any successful harvests [38].

#### *Limited Market Access and Pricing*

Limited access to markets hampers smallholder farmers' ability to sell their produce at competitive prices. Poor infrastructure and lack of market information prevent farmers from reaching urban centers where demand is high, resulting in surplus production that cannot be monetized effectively [8].

#### *Economic Challenges*

The broader economic environment also poses challenges. Inflation rates have soared, making agricultural inputs more expensive and reducing farmers' purchasing power. For instance, food prices have increased sharply, with essential items like tomatoes seeing price hikes of over 360% within a short period [38]. This economic instability threatens the sustainability of farming operations under the PFJ.

### 3.6. Impact of Food Policies on Agricultural Productivity

#### 3.6.1. Impact of Input Subsidy on Agricultural Productivity in Ghana

Table 4 presents the impact of input subsidy on maize productivity in Ghana. There was an increment of 4,984 mt from 2017 to 2019 together with the seed rate also experienced 7.8kg/ha within the two years. The land size for the PFJ program increased from 161 ha in 2017 to 401 ha. The PFJ farmer experienced a slight 0.1 mt/ha change within the implementation period while the output also increased from 484 mt to 1,204 mt, and national crop output increased from 2,011 mt to 2,912 mt in 2019. The PFJ attribution share also increased from 24% in 2017 to 41.4% in 2019. This means that the PFJ program significantly increased maize productivity in Ghana due to the improved seeds, fertilizers, and extension services received by the beneficiaries.

**Table 4.** Impact of input subsidy on maize productivity in Ghana.

Output	2017	2018	2019
PFJ seed supplied, mt	2,369.60	4,029.23	7,354
Seeding rate, kg/ha	14.7	18.4	22.5
PFJ land area, ha	161	219	401
PFJ farmer yields, mt/ha	3	2.9	3

Output	2017	2018	2019
PFJ output, mt	484	637	1,204
National crop, mt	2,011	2,306	2,912
PFJ attribution share, %	24	27.6	41.4

Source: MoFA, 2020

Agricultural input subsidies are essential in increasing agricultural productivity and raising living standards in developing countries. These subsidies, such as subsidized fertilizer and improved seeds, have led to an average increase of 18% in yields and 16% in agricultural household income. In addition, input subsidies and agricultural extension services have effectively increased agricultural labor and land productivity, especially in plots planted with corn [27].

## 4. Conclusions and Policy Recommendations

The study revealed that Ghanaian maize beneficiaries were 50 years old with 7 years of schooling, had larger households of 5 members, and 15 years of experience on 2 hectares. Ghanaian farmers received agricultural extension services 4 times annually. It was recorded that 67% of farmers received subsidized seeds, and 69% received fertilizers from the PFJ program. The food program positively influenced food security, sufficiency, and crop productivity, despite challenges such as implementation issues, inadequate resources, environmental factors, and market access. Allowing more time for food policy implementation can help beneficiaries adapt and achieve desired outcomes. The government should ensure high-quality seed availability to increase crop yields. Enhanced collaboration among stakeholders can lead to more cohesive program execution.

## Abbreviations

EU	European Union
FAOSTAT	Food and Agriculture Organization of the United Nations Statistics
GDP	Gross Domestic Product
GSS	Ghana Statistical Service
MoFA	Ministry of Food and Agriculture
NGO	Non-Governmental Organization
NPK	Nitrogen Potassium Calcium
PFJ	Planting for Food and Jobs
SDGs	Sustainable Development Goals

## Author Contributions

**John Atsu Agboloso:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation,

and Writing –original draft.

**Manuntun Parulain Hutagaol:** Supervision and Writing – reviewing and editing.

## Ethical Clearance

The study utilized secondary data. Ethical Clearance is not applicable.

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## Data Availability Statement

The data supporting the outcome of this research work has been reported in this manuscript.

## Conflicts of Interest

The authors declare no conflicts of interest.

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