



# Evaluating the Effectiveness of Government Input Support and Extension Services in Stabilizing Commodity Prices in Kebbi State

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## Abstract

This study evaluated the effectiveness of government input support and extension services in stabilizing commodity prices in Kebbi State, Nigeria. Using a sample of 321 farmers selected through stratified random sampling, data were collected via questionnaires and analyzed with multiple regression, correlation, descriptive statistics, and factor analysis. Multiple regression results revealed that input availability, extension contact, credit access, and farmer education significantly influenced commodity price stabilization, with the log-linear model explaining 72% of the variance ( $R^2 = 0.72$ ). Correlation analysis showed a strong positive relationship between extension contact frequency and farmer adoption of recommended practices ( $r = 0.67$ ,  $p < 0.001$ ). Descriptive statistics indicated moderate to high farmer satisfaction levels with advisory services and input quality, but lower satisfaction regarding credit access and subsidy distribution. Factor analysis extracted four key factors impacting program effectiveness: Input Accessibility, Extension Service Quality, Market and Policy Support, and Financial Facilitation, collectively explaining 68.5% of the variance. The study concludes that integrated and coordinated government efforts across input supply, extension services, financial facilitation, and market support are essential for sustainable commodity price stabilization. Recommendations include improving input supply chains, strengthening extension services, enhancing financial access, and facilitating market linkages to optimize program outcomes and support farmer livelihoods.

**Keyword:** Government input support, extension services, commodity price stabilization, farmer satisfaction, Kebbi State

## Introduction

Agriculture remains a pivotal sector in Nigeria's economy, employing a significant portion of the population and contributing substantially to national GDP. In northern states such as Kebbi, where agrarian livelihoods dominate, government agricultural interventions particularly input support and extension services are critical in shaping productivity and market stability [12]. Despite policy attention and resource allocation to subsidized inputs (fertilizers, improved seeds, herbicides) and technical support systems, the volatility of agricultural commodity prices continues to pose a threat to farmer income, food security, and rural economic development [10]. Commodity price instability in Kebbi State has been exacerbated by various challenges including climatic variability, poor market linkages, and inadequate policy implementation [4, 6]. In response, both federal and state governments have deployed agricultural support schemes aimed at boosting productivity and reducing supply-side shocks that often lead to price fluctuations. These include the distribution of subsidized inputs, seasonal intervention programs, and

the deployment of extension agents to provide farmers with agronomic advice and market information [2, 7].

However, empirical evidence on the effectiveness of these efforts in achieving sustained price stabilization remains inconclusive, particularly in the context of staple crops such as rice, millet, maize, and sorghum which dominate the state's agricultural output [10]. Theoretically, well-targeted input support can lower production costs, increase yield, and lead to surplus output that stabilizes prices. Similarly, efficient extension services can empower farmers with the knowledge to adopt best practices, reduce post-harvest losses, and align production with market demand [8, 11]. Yet, in practice, the implementation of these programs has faced criticism due to issues such as bureaucratic bottlenecks, elite capture, limited reach of extension agents, and inadequate feedback mechanisms [2, 5]. These concerns raise questions about the actual impact of government interventions on market stabilization and farmer welfare in Kebbi State. In light of this, a systematic evaluation of the effectiveness of government input support and extension services

in stabilizing commodity prices in Kebbi State is both timely and necessary. Such a study is expected to generate evidence-based insights that can inform future agricultural policy designs, improve program delivery, and ensure better market outcomes for rural producers. It also aims to contribute to the broader discourse on how developing economies can use targeted agricultural interventions to address market inefficiencies and protect vulnerable farming communities [3].

#### Statement of the Research Problem

Despite decades of public investment in agriculture, commodity price instability remains a persistent challenge in Kebbi State and across Nigeria. Seasonal gluts and shortages, abrupt price crashes during harvest, and price surges during lean periods continue to undermine farmers' income, threaten food security, and distort market systems [4, 10]. In response, government interventions such as subsidized input distribution and agricultural extension services have been widely implemented with the aim of boosting productivity and achieving greater price stability [12, 7].

However, the actual effectiveness of these interventions in stabilizing agricultural commodity prices remains largely undocumented and poorly understood, especially at the state level. In Kebbi State, where agriculture is a dominant livelihood activity, the government has intensified the provision of fertilizer subsidies, improved seeds, and extension support under programs such as the Growth Enhancement Support Scheme (GESS), and more recently, components of the National Agricultural Technology and Innovation Plan (NATIP) [2, 10]. While these initiatives are theoretically intended to enhance yields and create supply consistency that could stabilize prices, anecdotal evidence and field reports suggest mixed outcomes. Many farmers continue to report limited access to timely input support, irregular extension contact, and poor market information—conditions that often result in uncoordinated production, post-harvest losses, and wide price fluctuations [7, 11]. Moreover, structural problems such as poor logistics, inadequate storage facilities, and weak farmer cooperatives further hinder the ability of support programs to influence market outcomes meaningfully [6, 5]. The lack of empirical evaluation of how these interventions translate into price stabilization raises important concerns about their design, delivery, and monitoring [10]. Without rigorous assessment, there is a risk that policies may continue to be driven by political expediency rather than evidence of effectiveness. This study therefore seeks to address a critical gap in knowledge by systematically evaluating the extent to which government input support and extension services have contributed to stabilizing the prices of key agricultural commodities in Kebbi State. Understanding this relationship is essential for improving policy targeting, enhancing program outcomes, and promoting a more resilient and equitable agricultural market system [12, 3].

#### Research Questions

1. To what extent has government input support contributed to the stabilization of agricultural commodity prices in Kebbi State?
2. How effective are extension services in enhancing farmers' production decisions and reducing price volatility in the state?
3. What are the perceptions of farmers regarding the accessibility, timeliness, and adequacy of government input support and extension services?
4. What challenges hinder the effectiveness of input support and extension programs in stabilizing commodity prices in Kebbi State?

### Objectives of the Study

The broad objective of this study is to evaluate the effectiveness of government input support and agricultural extension services in stabilizing agricultural commodity prices in Kebbi State, Nigeria. The specific objectives are to:

1. assess the impact of government input support on the stabilization of agricultural commodity prices in Kebbi State.
2. examine the effectiveness of agricultural extension services in influencing farmers' production decisions and mitigating price volatility.
3. evaluate farmers' perceptions of the accessibility, timeliness, and adequacy of government input support and extension services.
4. identify the major challenges affecting the effectiveness of input support and extension programs in stabilizing commodity prices in Kebbi State.

## Methodology

#### Description of the Study Area

Kebbi State is located in the northwestern region of Nigeria and was created in 1991 from the former Sokoto State. Geographically, it lies between latitudes 10°05'N and 13°08'N and longitudes 3°30'E and 6°02'E. The state shares international boundaries with the Republic of Niger to the north and Benin Republic to the west, and domestic boundaries with Sokoto State to the northeast, Zamfara State to the east, and Niger State to the south. Kebbi State covers an estimated land area of 36,229 square kilometers and comprises 21 Local Government Areas (LGAs), including Argungu, Birnin Kebbi, Yauri, Zuru, and Bagudo. The capital, Birnin Kebbi, serves as the administrative and economic hub of the state.

The climate of Kebbi State is characterized by a tropical continental type, with two major seasons: a rainy season from May to October and a dry season from November to April. Annual rainfall ranges between 800 mm and 1,000 mm in the northern parts and can reach up to 1,200 mm in the southern areas such as Zuru. The average temperature ranges from 26°C to 42°C, with the hottest months being March and April. Agriculture is the mainstay of the economy, engaging over 80% of the population either directly or indirectly. The state is renowned for the cultivation of staple crops such as rice, millet, sorghum, maize, and groundnuts, as well as cash crops like cotton and sugarcane. Kebbi is notably one of Nigeria's leading rice-producing states and has been a focal point for national rice production initiatives, including the Anchor Borrowers' Programme [10, 12]. Livestock rearing, fishing especially in riverine areas like Yauri and Argungu and agro-processing also contribute significantly to household livelihoods.

Kebbi State has been a major beneficiary of federal and state agricultural interventions, particularly in the areas of input subsidy programs and extension service delivery [2, 7, 12]. However, the effectiveness of these programs in influencing commodity price stability remains an empirical question, given persistent market volatility and recurring complaints over late or inadequate distribution of inputs and under-resourced extension systems [6, 10, 11]. The state's diverse agro-ecological zones and economic dependence on agriculture make it a relevant and strategic site for studying the relationship between government agricultural interventions and commodity price outcomes [3, 4, 10].

### Research Design

This study adopted a **descriptive survey research design** aimed at evaluating the effectiveness of government input support and extension services in stabilizing commodity prices in Kebbi State, Nigeria. The descriptive survey design is appropriate because it allows for the collection of detailed data from a representative sample of farmers regarding their experiences and perceptions of government agricultural programs. It also facilitates the examination of relationships between key variables such as input availability, extension services, credit access, and commodity price stability. The study employed both quantitative data collection and analysis methods to ensure a comprehensive understanding of the phenomena under investigation. The use of structured question-

naires enabled the systematic collection of data across various locations, providing both breadth and depth of information relevant to the study objectives. Quantitative analytical techniques including multiple regression, correlation analysis, descriptive statistics, and factor analysis were applied to examine the influence of government interventions on commodity price stabilization and to identify underlying factors affecting program effectiveness.

### Sampling Procedure and Sample Size

The study adopted a multi-stage sampling procedure to select respondents across selected Local Government Areas (LGAs) in Kebbi State. In the first stage, four LGAs Argungu, Birnin Kebbi, Yauri, and Zuru were purposively selected based on their high levels of agricultural activity, diversity in agro-ecological zones, and the presence of significant government input and extension interventions. In the second stage, three farming communities (villages) were randomly selected from each of the chosen LGAs, giving a total of twelve communities. This approach ensured geographic and demographic representation across the state's major agricultural zones.

In the final stage, a systematic random sampling technique was used to select registered smallholder farmers within each community. Farmers were selected from lists obtained from local agricultural extension offices and farmer cooperative societies. The sampling interval was determined based on the total number of eligible farmers in each village. A total of 321 respondents were selected proportionately across the twelve communities. This sample size was considered statistically adequate for meaningful analysis and generalization. The table below presents the sampling distribution across LGAs and their respective villages.

**Table 1:** Sampling Procedure, Sampling Frame, and Sample Size by Village.

S/N	LGA	Selected Village	Sampling Frame (Estimated Farmers)	Number of Respondents (Sample Size)
1	Argungu	Alwasa	220	26
2	Argungu	Gwandu	230	27
3	Argungu	Gulma	225	27
4	Birnin Kebbi	Ambursa	210	25
5	Birnin Kebbi	Makera	200	25
6	Birnin Kebbi	Zogirma	215	25
7	Yauri	Shanga	240	28
8	Yauri	Koko	235	27
9	Yauri	Jega	245	28
10	Zuru	Dabai	250	28
11	Zuru	Bedi	235	27
12	Zuru	Manga	240	28
	<b>Total</b>		<b>2,745</b>	<b>321</b>

### Method of Data Collection

The primary method of data collection for this study was the use of a structured questionnaire. The questionnaire was designed to gather both quantitative and qualitative information from farmers regarding their experiences with government input support, extension services, and perceptions of commodity price stability in their communities. The questionnaire was divided into five sections. Section A focused on the socio-demographic characteristics of respondents (e.g., age, gender, farming experience, education level). Section B collected data on the availability, accessibility, and adequacy of government input support. Section C addressed the effectiveness and frequency of agricultural extension services received. Section D examined trends in commodity price fluctuations as perceived by farmers, while Section E sought respondents' views on the impact of these government interventions on market price stabilization.

The questionnaire consisted of both closed-ended and Likert-scale questions to facilitate ease of response and enable quantitative analysis. The instrument was administered through face-to-face interactions by trained enumerators familiar with the local language and agricultural context. This ensured that respondents clearly understood the questions and that responses were accurate and complete. Prior to the main data collection, the questionnaire was pre-tested in a non-sampled village within Kebbi State to ensure clarity, relevance, and reliability. Necessary revisions were made based on the feedback received from the pilot test. A total of 321 questionnaires were administered across the 12 selected villages, and all were retrieved and validated for completeness before analysis. This approach ensured a high response rate and enhanced the credibility of the data collected for the study.

### Method of Data Analysis

The data collected through the structured questionnaire were analyzed using both descriptive and inferential statistical techniques with the aid of the Statistical Package for Social Sciences (SPSS) version 25. To achieve the first objective, which is to assess the impact of government input support on commodity price stabilization, **multiple regression analysis** was employed. This method allowed for examining the relationship between the extent of input support received by farmers and variations in commodity prices over specified periods. For the second objective, focusing on the effectiveness of extension services in influencing production decisions and mitigating price volatility, **correlation analysis** were used to explore the association between frequency and quality of extension contact and farmers' reported price stability outcomes.

The third objective, which aimed at evaluating farmers' perceptions of the accessibility, timeliness, and adequacy of input support and extension services, was addressed using **descriptive statistics** such as means, percentages, and frequency distributions to summarize responses from Likert-scale items and other categorical data. Finally, to identify the challenges hindering the effectiveness of government programs, **factor analysis** was conducted to categorize and reduce the numerous reported challenges into underlying factors or themes. Additionally, **open-ended responses** were subjected to qualitative thematic analysis to provide nuanced insights.

### Model Specifications for the tools of Analysis

#### 1. Multiple Regression Analysis (Objective 1)

To assess the impact of government input support on commodity price stabilization:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_{7-k} X_{k_i} + \varepsilon_i$$

The four functional forms in the model are:

#### 1. Linear form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

#### 2. Log-linear form:

$$\ln(Y) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

#### 3. Exponential form:

$$Y = \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon)$$

#### 4. Double-log form:

$$\ln(Y) = \beta_0 + \beta_1 \ln(X_1) + \beta_2 \ln(X_2) + \beta_3 \ln(X_3) + \beta_4 \ln(X_4) + \beta_5 \ln(X_5) + \beta_6 \ln(X_6) + \beta_7 \ln(X_7) + \varepsilon$$

Where:

- $Y_i$  = Commodity price stability measure for farmer  $i$  (e.g., price variance or price index)
- $X_{1i}, X_{2i}, \dots, X_{k_i}$  = Independent variables representing dimensions of government input support (e.g., quantity of fertilizer, timeliness, subsidy amount)

- $\beta_0$  = Intercept
- $\beta_1, \beta_2, \dots, \beta_k$  = Coefficients indicating the effect of each input support variable
- $\epsilon_i$  = Error term

Y = Commodity price stability measure (dependent variable)

$X_1$  = Quantity of fertilizer received (Kg)

$X_2$  = Timeliness of input delivery (Hours)

$X_3$  = Subsidy amount (N)

$X_4$  = Access to credit (1 for access, 0 otherwise)

$X_5$  = Extension contact frequency (1 for contact, 0 otherwise)

$X_6$  = Farm size (ha)

$X_7$  = Farmer education level (Years spent in school)

## 2. Correlation Analysis (Objective 2)

To examine the association between extension services and price volatility:

$$r = \frac{\sum[(X_i - \bar{X})(Y_i - \bar{Y})]}{\sqrt{[\sum(X_i - \bar{X})^2 * \sum(Y_i - \bar{Y})^2]}}$$

Where:

- $X_i$  = Measure of extension service quality/frequency for farmer i
- $Y_i$  = Price volatility index for farmer i
- r = Pearson correlation coefficient measuring strength and direction of relationship

## 3. Descriptive Statistics (Objective 3)

To summarize farmers' perceptions on accessibility and adequacy of services (Likert scale responses):

$$\text{Mean } (\bar{X}) = (1/n) \sum X_i$$

Where:

- $X_i$  = Response score from farmer i on a Likert scale (e.g., 1 to 5)
- $\bar{X}$  = Mean perception score

Percentages calculated as:

$$\% = (\text{Number of respondents choosing a category} / \text{Total respondents}) \times 100$$

## 4. Factor Analysis (Objective 4)

To identify underlying challenges affecting program effectiveness: A principal component analysis with varimax rotation was conducted on 20 variables related to government input support and extension service effectiveness. The Kaiser-Meyer-Olkin measure verified sampling adequacy (KMO = 0.82), and Bartlett's test of sphericity was significant ( $\chi^2(190) = 1345.67, p < 0.001$ ), indicating suitability for factor analysis.

$$X_j = \lambda_{j1} F_1 + \lambda_{j2} F_2 + \dots + \lambda_{jm} F_m + \epsilon_j$$

Where:

$X_j$  = Observed variable j (e.g., reported challenges)

$F_1, F_2, \dots, F_m$  = Latent factors extracted from the data

$\lambda_{jm}$  = Factor loading of variable j on factor m

$\epsilon_j$  = Unique variance/error term

## Results and Discussion

**Table 4.1:** Multiple Regression Results on the impact of Government input Support on Commodity Price Stability

Variable	Linear $\beta$ (p)	Log-linear $\beta$ (p)	Exponential $\beta$ (p)	Double-log $\beta$ (p)
Constant	2.34 (0.012)**	1.85 (0.045)**	2.65 (0.007)***	0.92 (0.034)**
Fertilizer ( $X_1$ )	0.15 (0.0005)***	0.12 (0.003)***	0.18 (0.0001)***	0.22 (0.004)***
Timeliness ( $X_2$ )	0.10 (0.021)**	0.09 (0.031)**	0.12 (0.010)**	0.14 (0.018)**
Subsidy ( $X_3$ )	0.08 (0.080)*	0.07 (0.062)*	0.09 (0.055)*	0.11 (0.049)**
Credit ( $X_4$ )	0.05 (0.140)	0.04 (0.130)	0.06 (0.095)*	0.07 (0.080)*
Extension ( $X_5$ )	0.13 (0.002)***	0.11 (0.007)***	0.15 (0.001)***	0.17 (0.002)***
Farm size ( $X_6$ )	0.07 (0.041)**	0.06 (0.035)**	0.08 (0.038)**	0.09 (0.028)**
Education ( $X_7$ )	0.04 (0.120)	0.03 (0.110)	0.05 (0.070)*	0.06 (0.055)*
R-squared	0.71	0.68	0.73	0.75
Adjusted R-squared	0.68	0.65	0.70	0.72
F-statistic	25.42***	23.17***	27.35***	29.10***
Log-likelihood	-134.55	-137.20	-132.10	-130.50

Source: Field Survey, 2025 \* significant at 10% \*\* Significant at 5%, \*\*\* significant at 1%

The multiple regression analysis in Table 4.1 indicates that government input support significantly influences commodity price stability among farmers in Kebbi State, consistent with findings from recent agricultural economics research [2, 11]. Fertilizer quantity ( $X_1$ ) and extension service frequency ( $X_5$ ) are the most robust predictors, highly significant ( $p < 0.01$ ) across all model specifications. This aligns with empirical studies emphasizing the crucial role of quality inputs and advisory services in stabilizing output prices by enhancing production efficiency and timely market access [8, 7]. Timeliness of input delivery ( $X_2$ ) also significantly contributes to price stability, corroborating prior work showing that

delayed inputs disrupt production cycles, leading to supply shocks and price fluctuations [6].

The subsidy amount ( $X_3$ ) and farm size ( $X_6$ ) demonstrate marginal to moderate significance, implying that while financial support and scale of production help buffer price volatility, their effects might be mediated by other factors such as credit availability or market conditions [9, 6]. Credit access ( $X_4$ ) and farmer education level ( $X_7$ ) appear less influential, with significance mainly in the double-log form, suggesting nonlinear or indirect effects that require further exploration. This is

consistent with mixed findings in the literature regarding credit's impact on market stability [5]. Among the functional forms tested, the double-log model provides the best explanatory power (Adjusted  $R^2 = 0.72$ ) and model fit (highest log-likelihood), supporting the use of logarithmic transformations to capture elasticity and diminishing returns in agricultural production studies [4]. The statistically significant F-values across all models confirm the overall robustness of the regression results.

**Table 4.2:** Correlation Analysis Results of the Relationship between Extension Services and Farmer Adoption of Recommended Practices.

Variables	Correlation Coefficient (r)	p-value	Significance
Extension Contact Frequency ( $X_2$ )	0.67	0.0001	Highly Significant
Farmer Education ( $X_3$ )	0.45	0.002	Significant
Farm Size ( $X_6$ )	0.30	0.045	Marginally Significant
Access to Credit ( $X_4$ )	0.18	0.112	Not Significant

Source: field Survey, 2025

The correlation analysis in Table 4.2 reveals a strong positive relationship between the frequency of extension contact and the rate of farmer adoption of recommended agricultural practices ( $r = 0.67$ ,  $p < 0.001$ ). This finding aligns with recent studies emphasizing the critical role of extension services in knowledge transfer and technology adoption, which directly improves farming outcomes [10, 7]. Regular extension contact likely enhances farmers' awareness, skills, and confidence to implement new methods, consistent with findings by Nwosu *et al.* [8].

Farmer education also shows a moderate positive correlation with adoption ( $r = 0.45$ ,  $p < 0.01$ ), indicating that more educated farmers are better positioned to understand and apply innovations effectively [4]. Similarly, farm size demonstrates a weak but significant correlation ( $r = 0.30$ ,  $p < 0.05$ ), suggesting that larger farms may have more resources to experiment with new practices [1]. Conversely, access to credit did not show a statistically significant correlation ( $r = 0.18$ ,  $p > 0.05$ ) with adoption rates, echoing mixed results in prior literature regarding credit constraints and adoption behavior [5]. These findings underscore the importance of strengthening extension delivery systems and improving farmer education as key strategies to boost adoption rates and agricultural productivity [12].

**Table 4.3:** Level of Satisfaction of Farmers with Government Extension Services and Input Support

Variable	Mean	Standard Deviation	Interpretation
Satisfaction with Fertilizer Quality	3.8	0.92	Moderate to high satisfaction
Satisfaction with Input Timeliness	3.5	1.12	Moderate satisfaction
Satisfaction with Extension Visits	3.9	0.85	High satisfaction
Satisfaction with Credit Availability	3.2	1.15	Moderate satisfaction
Satisfaction with Training Programs	3.7	0.98	Moderate to high satisfaction
Satisfaction with Price Stability	3.4	1.10	Moderate satisfaction
Satisfaction with Government Policies	3.3	1.05	Moderate satisfaction

Variable	Mean	Standard Deviation	Interpretation
Satisfaction with Advisory Services	4.0	0.81	High satisfaction
Satisfaction with Market Access	3.6	1.00	Moderate to high satisfaction
Satisfaction with Input Subsidies	3.1	1.20	Moderate satisfaction
Satisfaction with Farm Credit Process	3.0	1.25	Moderate to low satisfaction
Satisfaction with Overall Support	3.7	0.88	Moderate to high satisfaction

Source: Field survey, 2025

The findings in Table 4.3 reveal that farmers generally express moderate to high satisfaction with various aspects of government extension services and input support. Notably, satisfaction with advisory services (mean = 4.0) and extension visits (mean = 3.9) rank highest, underscoring the value farmers place on personalized guidance and consistent contact [11, 14]. This corresponds with evidence that frequent and quality extension services enhance farmer trust and uptake of innovations [8]. Moderate satisfaction levels are reported for input timeliness (3.5), fertilizer quality (3.8), and training programs (3.7), suggesting room for improvement in supply chain management and capacity-building efforts [2]. These findings align with studies showing that delays in input delivery and inadequate training constrain agricultural productivity and farmer satisfaction [6].

Lower satisfaction scores appear in credit availability (3.2) and farm credit processes (3.0), indicating persistent challenges with financial services access, which is consistent with mixed reports in recent literature on rural credit systems in Nigeria [5, 9]. Overall, the moderate to high satisfaction across most variables points to positive perceptions of government efforts, but also highlights critical areas such as credit access and subsidy effectiveness that require targeted policy intervention [12]. Four factors with eigenvalues greater than 1 were extracted, explaining 68.5% of total variance.

**Table 4.4:** Factor analysis results of the challenges affecting the effectiveness of input support and extension programs in stabilizing commodity prices in Kebbi State.

Factor	Variables Loaded (Loading $\geq 0.50$ )	% Variance Explained	Cumulative %
1. Input Accessibility	Fertilizer availability (0.78), Timeliness of delivery (0.74), Input Subsidy adequacy (0.70), Credit availability (0.65), Farm size (0.54)	28.2	28.2
2. Extension Service Quality	Frequency of visits (0.82), Quality of training (0.76), Advisory relevance (0.73), Farmer-Extension communication (0.68), Problem-solving support (0.60)	19.4	47.6
3. Market and Policy Support	Price stability (0.75), Market access (0.69), Government policy clarity (0.62), Input price fairness (0.58), Market information availability (0.53)	11.0	58.6
4. Financial Facilitation	Credit processing ease (0.81), Loan repayment terms (0.75), Subsidy disbursement fairness (0.67), Farmer education (0.52), Loan amount adequacy (0.50)	9.9	68.5

Source: Field Survey, 2025

The factor analysis in Table 4.4 revealed four distinct underlying factors influencing the effectiveness of government input support and extension services, collectively accounting for nearly 69% of the total variance. This multidimensional structure echoes findings by [10, 7], who highlighted the complex, interrelated dimensions shaping agricultural support outcomes. The first factor, *Input Accessibility*, underscores the critical importance of timely and adequate provision of inputs such as fertilizer and credit, consistent with prior research emphasizing supply-side constraints as major barriers to agricultural productivity [1, 6].

The second factor, *Extension Service Quality*, captures the role of extension frequency, training quality, and effective farmer-extension communication, supporting the consensus that high-quality advisory services enhance technology adoption and farm performance [8, 12]. The third factor, *Market and Policy Support*, reflects the impact of stable market prices, access to markets, and clear government policies on farmers' ability to benefit from support programs. This aligns with [4], who found that market-related factors significantly influence the success of input support schemes. Lastly, *Financial Facilitation* highlights the importance of accessible, fair, and adequate financial services, including loan terms and subsidy disbursement. This finding corresponds to the work of [5], who identified financial facilitation as a pivotal determinant of farmer participation in government programs. Together, these factors suggest that government programs must adopt a holistic approach that integrates input supply, extension quality, market conditions, and financial mechanisms to optimize impact.

## Conclusion

The study concludes that government input support and extension services play a pivotal role in stabilizing commodity prices in Kebbi State. Effective input supply, frequent and quality extension services, and sound financial facilitation significantly influence farmers' adoption of innovations and market stability. Nonetheless, challenges persist, particularly in credit accessibility and subsidy delivery, which constrain the full potential of these programs. To maximize impact, policies must emphasize integrated service delivery models that combine input availability, extension quality, market support, and financial facilitation.

## Recommendations

Based on the findings, the following recommendations are proposed:

1. Improve logistics and distribution systems to ensure timely delivery of quality inputs like fertilizers and seeds to farmers, reducing delays that undermine productivity and price stability.
2. Increase the frequency and quality of extension visits and training programs to boost farmer knowledge, technology adoption, and adaptive capacity.
3. Design more accessible, transparent, and flexible credit schemes and subsidy programs to reduce financial barriers faced by smallholder farmers.
4. Support stable and fair market conditions through better price information dissemination, infrastructure development, and policy clarity to empower farmers in commodity marketing.

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