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Effect of cost fluctuations of agriculture products on farmer's lives in Kabul

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ABSTRACT

The lives of 85% of the people of Afghanistan depend on agriculture. Every year, sudden changes in the cost of agricultural products leave most farmers discouraged as they suffer financial losses and considered as the most vulnerable in the society. This research is focused on the effects of agricultural cost fluctuation on the life of the farmers, identify root causes, and describe the role of the agriculture department in managing these changes using questionnaires. Qarabagh, Charaseab, Paghaman, Shakerdare, and Dehsabz are selected for this study. Random sampling selected 30 farmers as respondents. Questionnaires, interviews, and documentary reviews are used to collect data, which were analyzed using interpretive and reflexive qualitative approaches and descriptive statistics. The research shows that price fluctuation of agricultural products discourages farmers from striving for a better life.

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1. Introduction

This study focuses on the sources of agricultural cost fluctuation in Afghanistan, which threatens the livelihoods of farmers throughout the nation. About 85% of Afghan citizens work in agriculture, which supports social services, education, health care, and other aspects of daily life [1]. When farmers go into debt, they are unable to afford supporting their children's education or family's health care, stressing the societal safety net. Many reasons contribute to the lack of agricultural cost stability: seasonal diseases, climate change, war, lack of education, or knowledge. Most farmers are discouraged and take out additional loans. It is estimated that two of every ten farmers are under financial duress. Due to its important topicthis study is conducted to analyze the effects of cost fluctuation in the agricultural sector [2].

What is cost fluctuation?

Cost fluctuations occur with volatile price changes for agricultural products, industrial products, or currency value changes. These changes may be periodical or sudden due to supply-demand dynamics, climate changes, and regional or international politics [3]. It is a challenge to minimize cost fluctuations as many of these causes cannot be easily controlled [2]. Managing cost fluctuations in Kabul may also be complicated due to the unstable government.

Price fluctuation is harmful not only to consumers but also producers. In general, farmers do not have enough investment capital to persist through such unpredictability [4]. Unanticipated high costs can force farmers to make sub-optimal investment decisions and compromise production in the long term. Higher food prices do not necessarily benefit farmers in developing countries since inflation causes non-food essentials such as cooking fuel, transportation, rent, fertilizers, kerosene, and other agricultural inputs to become more expensive [4].

Most farmers survive at the lowest standard of living, spending all their efforts by cultivating many different agricultural products such as tomatoes, onions, potatoes, and vegetables. Poor farmers of Afghanistan spend money to purchase the seeds, prepare land for cultivation, apply pesticides, and irrigate, hoping to break even [4]. When cultivation costs rise or produce market prices drop, the farmers find themselves deeply discouraged in debt, and no help is offered from the government or NGOs.

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2. Solution mechanism

To address the cost fluctuation problem, a solid plan should be drawn among stakeholders and governing authorities within the Ministry of Agriculture, Irrigation and Livestock and its provincial directorates with realistic and physical linkages among the government, NGO's, the private sector, and farmers. A "bottom-up" approach should be implemented. The plan should be from bottom to top, not from top to bottom. The government should have an emergency plan prepared, and every farmer should be informed of the resources the government can provide at the village, district, provincial, and national levels. NGO's can also provide support facilities such as cold storage, a loan system, and an alert monitoring system.

3. Methodology

Farmers, government administrators, and non-government organizations focused on the agricultural sector were interviewed through calls and questionnaires for this study. We designed two types of questionnaires: one for organizations and another for the farmers. The questionnaire for the NGOs focused on ten different theoretical questions related to the role of NGOs in the agriculture sector of Afghanistan:

Questionnaires were sent to the following at the Ministry of Agriculture, Irrigation and Livestock Afghanistan:

1- SGRP (Strategic Grain Reserve Project)

2- CHAMP (Commercial Horticulture and Agricultural Marketing Program)

3- Directorate of Private Sector

4- FAO (Food and Agriculture Organization)

The questionnaire from the CHAMP is following in which ten questions are given and their answers from the CHAMP. No completed questionnaires were returned from the FAO. SPSS Software was used to analyze responses from the questionnaires given to the farmers, consisting of 14 questions.

4. Result and discussion

Since 2007, the agricultural commodity markets have frequently experienced extreme price fluctuations, causing severe supply problems in the least developed countries. Based on the study wanted to determine any linear relationships between the price in years 1396-1398 Hejri-Shamsi (2017-2018).

Table 1: Price of agriculture product from namely years with AFN/kg

Product	1398	1397	1396
Wheat	20.25	21.2	21.7
Corn	24.95	21.9	20.2
Bean	76.25	96.8	90.2
Apple	50	41.9	37.1
Potato	16.75	16.5	21
Tomato	11.25	31.6	30
Onion	11	10.7	18.3
Cucumber	15	21.7	20
Courgettis	10	21.4	18

Student t distribution is used only for small sample cases. For the given sample data, we use the hypothesis testing [5].

H_0: There is not linear relationship.

H_1: There is linear relationship.

The significance level is $\propto = 0.05$.

$$t = \frac{r \cdot \sqrt{n-2}}{\sqrt{1-r^2}} = \frac{(0.9152) \cdot \sqrt{9-2}}{\sqrt{1-(0.9152)^2}} = 14.6514$$

The critical value of $t = 1.90$ is found in the t-student distribution table by using the row for $n - 2 = 9 - 2 = 7$ degrees of freedom and the column for $\propto = 0.05$. The test statistic is $t = 14.6514$. Since the test statistic of $t = 14.6514$ does not fall in the critical region, we fail to reject H_0. There is a minor linear relationship between the price of 1396 and 1398 years.

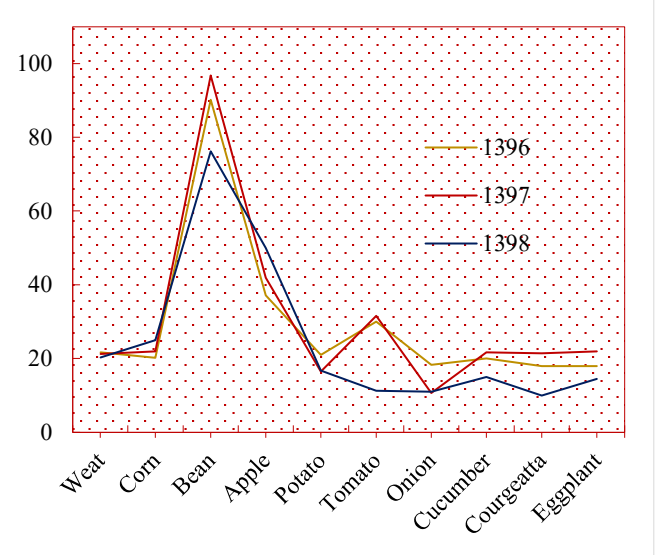

Figure 1. Price of agriculture product from namely years with AFN/kg.

In the questionnaire for CHAMP, we asked: "Is there any specific department in CHAMP working to control cost fluctuations of agricultural product in Kabul province?" While the organization answered affirmatively, a full explanation was not provided, stating that the marketing department is working. From this response, we surmised that there was no marketing plan in place nor any subsidies or loan programs organized to address cost fluctuations within Afghanistan among the NGO's or the national government. According to CHAMP, the government should be responsible for the control of cost fluctuation to improve farmers' lives, but this is not final.

As SGRP NGOs work on the storage for agricultural products, our survey asked them, "Are there cold storage facilities?" Our response was affirmative, while located around the country in the main provinces of Afghanistan are facilities that are dedicated to wheat storage for a fee. No free-of-charge cold storage facilities were identified, and no subsidies are available for lower-income farmers.

To address questions pertaining to livestock, a questionnaire was returned from the person, who is in charge of coordination and communication.

To the private sector directorate, we asked, "Is there a role for the private sector to maintain stability in agricultural prices?" A marketing manager cited an agricultural exhibition in Kabul where traders, International Organizations, Government, and farmers can attend. Unfortunately, remote, poor farmers are not invited or perceived to be welcome. A second question was asked: "Is there a private organization or trader who are making contract with the farmer before cultivation?" The response was no. A third question was: "How does the private sector directorate rate the relationship between farmers and traders: good, very good, or excellent?" The response was "good." Finally, it was asked "why do farmers experience such problems?" The private sector directorate cited the lack of awareness or communication between farmers and government or NGO resources.

These responses verify that while cold storage, traders, and markets are available, farmers are still struggling. The questionnaire given to farmers are delivered in local dialects to 10 districts within the Kabul province. There are fourteen multiple-option questions. By using of regression, we can predict the product price in 1398.

Table 2: Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.924a	.853	.811	9.34883

Predictors: (Constant), pr_1396, pr_1397.

By using Adjusted R-Square analysis, we predict the product prices for the coming year increase by 81% compared with the previous two years.

Table 3: Case processing summary.

Cases	N	%
Valid	30	81.1
Excludeda	7	18.9
Total	37	100.0

Table 4: Reliability statistics.

Cronbach's Alpha	N of Items
.720	12

The p-value describes the probability of obtaining your sample data IF the null hypothesis (e.g., the average cost of Cairn terriers = $400) were true. If you obtain a p-value of 0.85, then you have little reason to doubt the null hypothesis. However, if your p-value is 0.02, there's only a very small chance you would have obtained that data if the null hypothesis was in fact true.

Our analysis of the 14-question survey of farmers shows there is a negative impact of cost fluctuation of agricultural products on the lives of farmers due to the following sixteen reasons:

1- Nobody takes responsibility for controlling costs: not Government, NGOs, nor the Private Sector.

2- Excellent relationships exist among the traders, government, NGOs, and Farmers.

3- No subsidized loans are available from any organization such as government, NGOs, and Private Sector; if there are, NGOs such as ADF and HVCDPS charge interest.

4- No markets exist where the farmer can sell their products.

5- No department in Afghanistan monitors daily changes in agriculture products to the traders or shopkeepers.

6- The weather alert system in the Kabul Province does not help the farmer to protect their crops.

7- No Government organization guides farmers before crop cultivation of any product.

8- Farmers do not trust Government extension workers.

9- The government has no emergency plan for volatile cost fluctuations of the agricultural products.

10- The illiteracy rate of the farmers 11- Afghanistan's relationship with neighboring countries like Pakistan and Iran.

11- No direct relationships between farmers and international traders.

12- No international standard cold storage facilities.

13- Lack of awareness about the cold storage facilities.

14- Farmers are unaware of the process to take their products to cold storage facilities.

15- The high expense on farmers to store their products in government-owned or private-owned cold storage facilities.

5. Conclusion

There is a negative impact of cost fluctuations of agricultural product on the lives of farmers due to the above 16 reasons. According to my data analysis, the government bears responsibility for the negative impact of cost fluctuation on the life of farmers.

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