SDI Review Form 1.6

Journal Name:	**Asian Journal of Agricultural Extension, Economics & Sociology**
Manuscript Number:	**Ms_AJAEES_66839**
Title of the Manuscript:	**Assessment of cereal self-sufficiency and food balance projection in Afghanistan**
Type of the Article	**Original Research Article**

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments	The author should report some literatures of the previous similar studies.What is the importance to analyse the trend on crop production and consumption? Discuss the different methodologies used by other authors regarding the topic. The author ran simple regression on time series data to try to establish a relationship between crop production and consumption, which is not appropriate. Because of stationarity problem of the nature of time series data, we cannot used simple regression. We therefore recommend to use economic model such as cointegration to establish this relationship. Use econometric model such as cointegration to capture long-term and short-term relationship between consumption and production; e.g., Zakari and Liu (2013). The impact of Niger food imports and food aid on domestic food production: Cointegration and vector error correction approaches.	The author should report some literatures of the previous similar studies.What is the importance to analyse the trend on crop production and consumption? Discuss the different methodologies used by other authors regarding the topic. RESPONSE A number of studies examined cereal self-sufficiency and prediction in the context of developing countries [30; 31; 32]. Van et al.[30] used production: consumption ratio to assess rice self-sufficiency in 2025 in eight African countries, and their result demonstrated that with increasing population, diet change, and yield increase on existing land area, such nations cannot be self-sufficient. Similarly, Zakari, Seydou.[33], applied econometric model co-integration and vector error correction approaches to examine the impact of Niger food imports and food aid on domestic food production; the result indicated that food import and food aid have no significant effect on Niger domestic production in the long-run. A possible explanation is that the study supported self-sufficiency by domestic production. Also, Elmulthum.[31] used a simple linear regression to forecast cereal self-sufficiency in Sudan, and found that the self-sufficiency ratio was less than 100% almost all the time, and Sudan will continue to suffer from food insecurity. In addition, very few studies used per capita production to forecast future cereal self-sufficiency [34; 35]. In Afghanistan, previous research has focused on the qualitative evaluation of two aspects of food self-sufficiency (consumption and production) [11; 16; 36]. In our opinion, no previous research have considered the historical patterns in the balance of food crop consumption and production and its impacts on the trends of self-sufficiency. The author ran simple regression on time series data to try to establish a relationship between crop production and consumption, which is not appropriate. Because of stationarity problem of the nature of time series data, we cannot used simple regression. We therefore recommend to use economic model such as cointegration to establish this relationship RESPONSE The ARIMA model was used to forecast major cereal production and consumption in Afghanistan. We conduct our analysis in two stages. In the first stage, we check for non-stationary or existence of unit root in the time series data. Due to the argument Zakari et al., [37], for the test to be accurate, the time series analysis must have the same order of integration. Augmented Dickey-Fuller (ADF) tests of unit root were used. In the second stage, we used the BOX-jenkins (1970) technique of the ARIMA (p d p) approach to predict production and consumption[38]. The ARIMA (p d q) model a mixture of the autoregressive(AR) and moving average (MA) models, which demonstrate that there is an association between present and past values. The AR is one of the ARIMA model elements indicating the variable under concern is regressed on its initial values. MA aspect of the ARIMA approach indicates that the regression error is a linear combination of values of the error occurring at different time intervals in the previous, and I aspect of ARIMA indicates how many periods differencing has been achieved. The enter aim of investigation an appropriate AR, I, and MR terms is to adjust to get the approach to be in the greatest way possible. However, the ARIMA approach has its own limitation when it comes to relying on past values;

		nevertheless, it works greatest for long time series. It doesn't clarify the original data mechanism's structure; instead, it approximates historical trends [39; 40]. AR (p) approach can be defined as: : Y_t = c + $\alpha_1 Y_{t-1}$ + $\alpha_2 Y_{t-2}$ + ……..+ $\alpha_p Y_{t-p}$ + ε_t (1) Where ε_t = (0,σ^2), c is an unknown constant, and it is measure to one for the constraints of the AR approach. MA (q) approach cone specified as: Y_t = c + ε_t + $\alpha_1 \varepsilon_{t-1}$ + …… +α_q+ ε_{t-q} (2) Where ε_t = (0,σ^2), c is a constant term of unknown and α_1, α_2 are the MA model's parameters of the MA approach. A time series stationary Y_t It is named order of autoregressive moving average (p), ARIMA (p), if for every t: Y_t - $\alpha_1 Y_{t-1}$ + $\alpha_2 Y_{t-2}$ + …….. + $\alpha_p Y_{t-p}$ = c + ε_t + α_1 ε_{t-1} + …… +α_q ε_{t-q} (3) ε = (0, σ^2). The polynomials generation (ε) = 1 – θε - …….. - $\theta_p \varepsilon^p$ And (ε) = 1 + α_1ε + …….$\alpha_q \varepsilon^q$, they have not common roots. After association the differencing with the ARIMA approach, the autoregressive integrated moving average method was obtained, in this approaches, i.e., the ARIMA (p, d, q), where d is the differencing order; therefore, an ARIMA approach corresponds to an ARIMA after differencing Y_t d periods. However, the autoregressive model of the common form of ARIMA model (1, 1, 2) is expressed as: Y_t = c + $\alpha_1 Y_{t-1}$ + α_2 Y_{t-2} + …… + α_p Y_{1-p} + $\alpha_t \varepsilon_{t-1}$ + $\alpha_2 \varepsilon_{t-2}$ ……+ $\alpha_q \varepsilon_{t-q}$ + ε_t (4) Further information in the manuscript
Minor REVISION comments		
Optional/General comments	The appropriate methodology is missing here.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	