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	1- In Table 2, the total production for years (1987-1988), (1989-1990), (1991-1992), (1995-1996) and (1997-1998) is greater than total consumption. But based on the results of this study the amount of Self –sufficiency is very low (4,4.5, 2.1, 0.3, and 0.5), while it should be above 100. 2- Fig. 1 and Fig.2 show that the time series data used in this study are not stationary (you should check stationary of data by tests such as Dickey–Fuller test). In addition, it seems that your data suffer from a structural break. Hence, I sure that the results are presented in Table 2 are not valid. 3- I was really confused about how to make a prediction using a linear regression. I highly recommend that you use econometric techniques such as ARIMA or artificial neural network for prediction.	In Table 2, the total production for years (1987-1988), (1989-1990), (1991-1992), (1995-1996) and (1997-1998) is greater than total consumption. But based on the results of this study the amount of Self –sufficiency is very low (4,4.5, 2.1, 0.3, and 0.5), while it should be above 100. RESPONSE Self-sufficiency calculation can be reduced to a simple equation of production and consumption. We use the production-consumption ratio (p/c=1) as an indicator of self-sufficiency, where the country is self-sufficient at p/c=1. However, in the years 1987-1988), (1989-1990), (1991-1992), (1995-1996) and (1997-1998) the production consumption ratio p/c=1 in Afghanistan greater than one. The calculation follow as below: For example in the years of (1987 - 1988) p= 5875 thousand tons C= 5648 thousand tons $\frac{5875}{5648} = 1.04$ Therefore, in these years, the production-consumption ratio p/c=1.04. If measure with percentage, our result indicates 4%. I was really confused about how to make a prediction using a linear regression. I highly recommend that you use econometric techniques such as ARIMA or artificial neural network for prediction. RESPONSE **2.2.2. Model description** 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	1.The following sentence is not clear: In general, **g** significantly among cultures and livelihood groups. 2. In Table 2, you used 2020 instead of 2030.	**g** represents the necessity of annual cereal (kg per person per year), In practice, the amount of g significantly different among cultures and livelihood groups. 2. In Table 2, you used 2020 instead of 2030 solved the problem
Optional/General comments		

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)*	