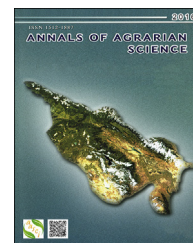


Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: <http://www.journals.elsevier.com/annals-of-agrarian-science>

# Fruits and vegetables in consumption basket of Republic of Armenia in 2008–2015

G.V. Vardanyan\*, G.H. Keshishyan

National Agrarian University of Armenia, 0009, Yerevan, St. Teryan 74, Armenia

## ARTICLE INFO

### Article history:

Received 2 February 2016

Accepted 3 May 2016

Available online 24 May 2016

### Keywords:

Seasonal fluctuation

Fruits

Vegetables

Food basket

Additive model

## ABSTRACT

In follow article quarterly seasonal fluctuations of the consumption of fruits and vegetables in the food basket were studied in period of 2008–2015 by data of RA. Among the other products in food basket the seasonal fluctuations of fruits and vegetables are more noticeable. The main purpose of this research is to discompose the time series of consumption volumes of fruits and vegetables for studying the seasonal component's impact and for making the credible predictions. The tendency of these commodities have been shown by the linear regression model. According regression model the consumption value of fruits in the food basket each quarter decreased increased by 1.741 AMD, the rest part of the fruit consumption level is formed through the seasonal and error components. According regression model, the consumption value of vegetable in the food basket each quarter increased by 27.97 AMD, and main part of the volume of vegetables consumption in the time series is formed through the seasonal and error components. The seasonal fluctuations of commodities of have been presented with the help of multiplicative models. Taking account the main components of studied time series, the predicted values of the consumption of fruits and vegetables in the food basket have built for the further quarters. © 2016 Agricultural University of Georgia. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

The food basket actual volume is calculated by National Statistical Service of Republic of Armenia by the data of the Integrated living conditions Survey based on the methodology of World Bank. The food basket shows the average volume of the products which are consumed by the adult person during a month. It includes 12 named food products, and some of them have permanent consumption, several products have seasonal consumption per adult person. Among the products of food basket the consumption fruits and vegetables are

distinguished by noticeable seasonal fluctuations. These fluctuations depends on not only their production but also the socio - economic conditions of the country. In this point of view the it's necessary to analyze time series of these products. In this research the time series encompass the quarterly data 2008–2015.

## Objectives and methods

The objective of this research is to study the time series of consumption volumes of fruits and vegetables in food basket

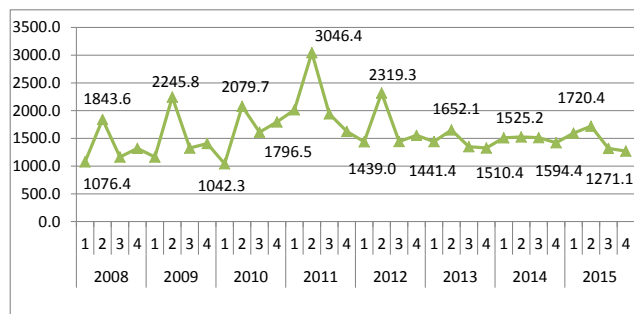
\* Corresponding author. Tel.: +374 91 905 947.

E-mail address: [vardgohar@yandex.ru](mailto:vardgohar@yandex.ru) (G.V. Vardanyan).

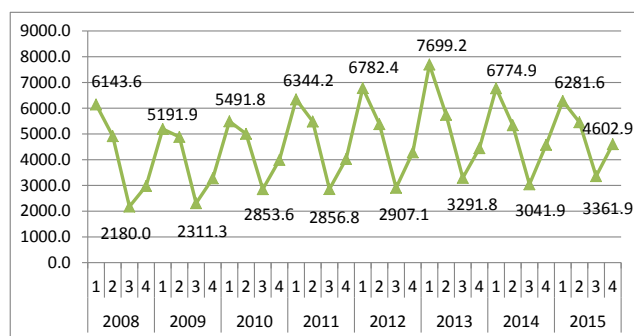
Peer review under responsibility of Journal Annals of Agrarian Science.

<http://dx.doi.org/10.1016/j.aasci.2016.05.015>

1512-1887/© 2016 Agricultural University of Georgia. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



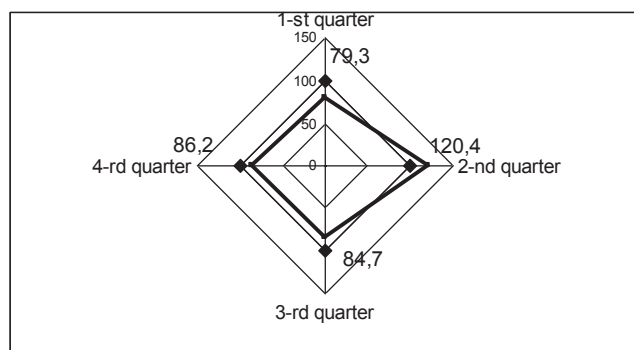
**Fig. 1 – The consumption volumes of fruits in the food basket by quarters in 2008–2015, per capita (AMD).**



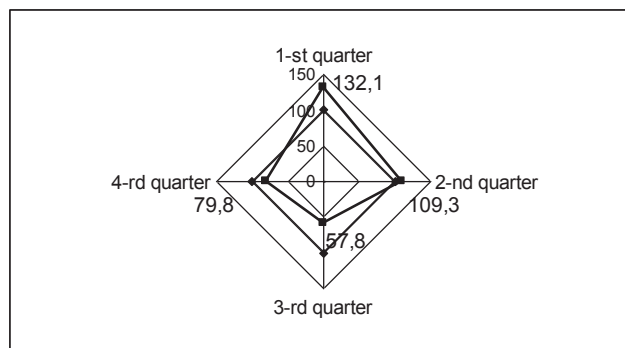
**Fig. 2 – The consumption volumes of vegetables in the food basket by quarters in 2008–2015, per capita, (AMD) [1].**

and to analyze the influence of separate components of time series.

It is generally believed that time series are composed of four components: trend, cyclicity, seasonality, and irregularity. Not all time series data have all these components. The long-term general direction of data is referred as trend. The cycles are patterns of highs and lows through which data move over time periods usually of more than a year. Seasonal



**Fig. 3 – The quarterly seasonal fluctuations of the consumption volumes of fruits and vegetables in food basket of RA in 2011–2015.**



**Fig. 4 – The quarterly seasonal fluctuations of the consumption volumes of vegetables and vegetables in food basket of RA in 2011–2015.**

effects on the other hand are shorter cycles, which usually occur in time periods of less than one year [2].

One of the methods presenting the seasonal characteristics of these commodities is the evaluating the seasonal indices. The analysis of time series, which include the seasonal waves, allows separately to study the nature of seasonal fluctuations. The seasonal fluctuations are describing by special indicators known as seasonal indices. They reflect the seasonal waves of time series. For disclosing the seasonal fluctuations usually the monthly or quarterly data are studied for several years. At least three years' quarterly data are observed in order to avoid the irregular affect of the one year [3].

The calculation of seasonal indices is one of the common methods of studying the seasonal fluctuations. The seasonal indices are the ratio between the absolute volume of quarterly average data and annual average data [4].

The next methodological approach analyzing the seasonal fluctuations is to build the additive and multiplicative models for time series, and they are presented in follows forms:

additive model –  $Y_t = T + S_t + E$ ,

multiplicative model –  $Y_t = T \times S_t \times E$ ,

$Y_t$  – is the actual value of studied phenomenon

$T$  – is tendency component,

$S_t$  – is seasonal component,

$E$  – remainder component.

The process of building additive or multiplicative models develops through following steps:

Step 1 – calculating the moving averages for the time series,

Step 2 – calculating the seasonal component  $S_t$ ,

Step 3 – presenting a form of trend  $T$ ,

Step 4 – calculating  $(T + S_t)$  and  $(T \times S_t)$  components correspondingly for additive and multiplicative models,

Step 5 – separating the remainder component [5].

Download English Version:

<https://daneshyari.com/en/article/866144>

Download Persian Version:

<https://daneshyari.com/article/866144>

[Daneshyari.com](https://daneshyari.com)