

# Perspective Evaluation of a Poultry-Breeding Enterprise Financial Resources Based on Seasonal Decomposition

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## Abstract

The authors used prospective estimates of revenue and accounts receivable, obtained on the basis of an additive trend-seasonal model, to forecast the poultry enterprise financial resources. The study highlights the fact that the classical decomposition of the trend-seasonal model into trend, seasonal and random components is possible and convenient for forecasting the financial resources of a poultry enterprise that has a seasonality in production. The forecast estimates presented in the article confirmed the main hypothesis of the study – if there are objective seasonal fluctuations for a poultry enterprise, there is a tendency to increase sales revenue and accounts receivable due to limited customer liquidity. The results of the obtained empirical estimates confirmed the practical use feasibility of an additive trend-seasonal model based on the classical decomposition for predicting the financial resources of a poultry enterprise.

**Keywords:** sales revenue, accounts receivable, forecast, seasonal decomposition, trend-seasonal model

## I. INTRODUCTION

It is necessary to conduct a financial resources full forecast analysis of activities for poultry enterprise stable operation. The seasonal trend of poultry production is determined by the birds' physiology. Modern technologies for keeping birds allow smoothing out seasonal fluctuations in production to some extent. However, the high susceptibility of birds to various seasonal factors does not allow to achieve completely rhythmic production. Accounting for seasonal fluctuations is of great practical importance for overcoming or mitigating them and is especially necessary when forecasting and planning the main indicators of the enterprise. A prognostic analysis of revenue and receivables makes it possible to identify trends in the financial resources of an enterprise, indicate to management the paths for further successful development, point out errors in economic activity, and also identify reserves for the financial results growth, which ultimately allows more successful activities [1; 2; 3; 4]. Analysis of of a poultry enterprise allows one providing

timely management with information forming an objective opinion on the activities for the reporting period compared to the previous year, as well as identifying factors that caused changes in the indicators of financial resources and develop measures to optimize their receipt and use [5;6;7;8]. The financial resources growth strengthens the company's position in the production and financial sphere, as well as stimulates the investment inflow [9;10; 11]. There is an analysis of the long - and medium-term outlook, but a detailed and accurate forecast is not possible in the long term [12]. Due to this, short-term forecasts are often used, since their results are more accurate and reliable [13; 14]. Predictive analysis serves as the basis for making decisions on the development and improvement of the organization's functioning. Therefore, the purpose of this study is to forecast revenue from sales and receivables as sources of the enterprise financial resources. The main hypothesis of the study is that if there are objective seasonal fluctuations for a poultry enterprise, there is a tendency for sales revenue to grow and accounts receivable to grow.

## II. METHODS

We used the quarterly data on revenue and accounts receivable of poultry enterprises from 2016 to 2020 for the purpose of forecasting. The trend and the decomposition method that the forecast will be based on should be chosen depending on the tasks set for the forecaster, as well as considering all the advantages and disadvantages of known methods. This study uses an additive trend-seasonal model based on the classical decomposition:

$$Y_t = T_t + S_t + E_t,$$

where  $T_t$  - time trend, regular component that characterizes the overall development trend;

$S_t$  - seasonal component, which is characterized by the seasonal fluctuations period duration, their amplitude;

$E_t$  - a random component that represents small deviations that cannot be predicted in the long term.











