

# **STOCK AND RICE PRICE PREDICTION MODEL DEVELOPMENT WITH ASSISTANCE OF INTERACTIVE SOFTWARE**

Sigit B. **PRAYUDO** and Senator **NUR BAHAGIA**  
Expertise Group of Industrial System and Techno-Economics  
Faculty of Industrial Technology  
Institut Teknologi Bandung (ITB)  
Jl. Ganesha 10, Bandung 40132, Indonesia  
E-mail: [sigitbprayudo@gmail.com](mailto:sigitbprayudo@gmail.com), [senator@mail.ti.itb.ac.id](mailto:senator@mail.ti.itb.ac.id)

## **ABSTRACT**

Rice is a strategic commodity in Indonesia for its role as one of basic needs. Rice production in Indonesia is following a seasonal pattern but in the other hand its consumption is following continuous pattern for each month. The problem which often occurs is the instability of rice stock in the market so that its price is become unstable as well. In order to overcome that problem, a model to predict future rice stock is urgently needed. If the search for prediction model is done at a time it will take a very long time. The usage of software for searching proper prediction model for each variable with different characteristics saves plenty of time. The software is developed not only for searching prediction model with high R-Square value but also with a make sense solution. This software design is interactive so that the user will able to use it easily for predicting rice stock and price.

The proposed model consists of several models such as aggregate supply model, aggregate demand model, stock model, and price model. Aggregate model supply model, aggregate demand model, and stock predicting model is using mathematical calculation but the price model is using econometric model. This research uses exploration of many papers and information media and interviews with many experts in order to discover the interrelationship between various variables in this model. Prediction models used in this research are exponential smoothing model, ARIMA, multiple regression model, and two stage least square model. The algorithms as basic of this software are developed based on requirements of the prediction model calculation for each variable and then the software will execute prediction for next six months.

This research is able to identify variables that affect price and rice stock. Those variables are formulated into mathematical model used as basic in software development. The proposed model is able to predict the aggregate supply, the aggregate demand, the rice stock and price.

This software is also able to be used interactively where user can define the area to predict, predictor variables, updating data, and view the output.

**Keywords:** Prediction, Software, Rice, Supply, Demand, Stock, Price.