

Crude Palm Oil Price Modelling: A Comparison of Time Series Model

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ABSTRACT

A variety of methods have been developed to model palm oil prices due to its rapid changes over time. The price modelling represents valuable and fundamental information to direct and indirect traders in fats and oils market. This study focuses on comparing the performances of two time series approaches which are the univariate and multivariate analysis in modeling the prices of palm oil. The univariate analysis produces Autoregressive Integrated Moving Average (ARIMA) while the multivariate analysis produces Autoregressive Distributed Lag (ARDL) model. This study uses monthly prices of crude palm oil as well as monthly production of crude palm oil, monthly closing stock of crude palm oil, monthly export and import of crude palm oil from January 2000 until December 2013. The findings show that production and export have positive impact on price while import and stock have negative impact on price of palm oil. This study implies that the government should reduce the import and closing stock of palm oil to upturn its price. For future recommendation, other factors that might affect the price of palm oil such as yield, and oil extraction rate should be integrated by other researcher.

Keywords: Palm oil, ARDL, ARIMA, cointegration, time series

INTRODUCTION

The commodity prices exhibit an increase after a decrease until the beginning of 21st century. The increase in prices has been led due to the increment of cereals and oil prices by 35% and 30% respectively. This volatility in agricultural commodities price affects the world food industry. Factors such as supply and demand as well as natural disaster and immediate change in policy decisions can affect each other as well as the price.

Most of developing countries rely on vegetable oils as a source of fat. In fact, vegetable oils primarily palm oil contribute major role in the global market of vegetable oils. This is due to their price which is cheaper prices (Ramli and Mohd Alias, 2006). Like any other agricultural commodities, palm oil also experienced price fluctuation.

The determination of agricultural commodities prices are based on a complex interaction among multiple factors including crude petroleum oil price, exchange rates, time-lag, demand and supply situation and slowing growth in agricultural productivity as well as the government policies. The palm oil industry in Malaysia is vulnerable to price fluctuations due to changes in the world economic forces such as fundamental factors of supply, demand and other technical and social factors (Mad Nasir et al., 1988).

Strong demand for oil palm products will lead to an increase in palm oil prices in the market. However, if the supply of palm oil growth is much faster than its demand, the prices will be negatively affected (Fatimah and Amna Awad, 2013). The low stocks or uncertainty about stock levels in some countries also causes price to increase drastically. Stocks can decrease when there is a response to a supply or demand changes. Nevertheless, new production is needed to increase the supply. The analysis of the effects of different macroeconomic variables is important since they can help policy makers of an economy to better formulate policies (Mohsen & Sujata, 2015).