Impact of climate change and economic factors on Malaysian food price

ABSTRACT

This paper is motivated by the increasing food price over the recent years (2010 – 2017) in Malaysia. Food is a necessity for mankind and everyone has equal rights to enjoy adequate food protecting from hunger and malnutrition. In general, we understand that food and agriculture production are highly related. Crop production is affected biophysically by climatic variables, i.e. suitable rainfall and temperature for photosynthesis process to take place. If these climatic variables alter extremely in a long-term period, crop production will be affected and crop damage can occur due to the climate change effect such as extreme flood and drought. Hence, if climate change effect is defined as a linear relationship, it will result in a misleading explanation whereby as long as rainfall and temperature increase (or decrease) it will cause the crop production to decrease (or increase). Given the problem associated with food price, this paper investigated the food price determinants by looking at both economic factors and climate change. Non-linear time series analysis namely Engle-Granger (EG) cointegration test and Error Correction Mechanism (ECM) were performed by including the determinants such as Carbon Dioxide (CO2), crude oil price, exchange rate and real gross domestic product (RGDP). The results showed that both economic Real Gross Domestic Product and climate factors jointly affect food price significantly and climate factor (CO2) exhibits a strong non-linear U-shaped impact on food price in the long run. In addition, the Error Correction Term (ECT) showed that food market will have a slower self-recovery mechanism to adjust and return the temporary food market demand-supply shock to the equilibrium.

Keyword: Food price; Nonlinear cointegration