Economic climate model of the oil palm production in Malaysia

ABSTRACT

Climate change is arguably one of the most important factors influencing agricultural production in developing countries such as Malaysia. Therefore, it becomes important to explore the impacts of climate change on agricultural yield and production. Cocoa was brought to Malaysia for commercial planting in the 1950s. The palm oil industry grew to become the first major commodity crop in Malaysia. This study applied the autoregressive distributed lag (ARDL) co-integration approach over the periods (1980 - 2014). There are two main methods including the Regional Climate Model (RCM) which can reasonably produce appropriate projections that can be used for climate scenario generation in a country-scale. Based on this information, this study considered three scenarios: 1) First Scenario, Rainfall changes 2) Second Scenario, Temperature changes 3) Third Scenario, Scenario 1 and 2 simultaneously. Preliminary results from the Autoregressive Distributed Lag (ARDL) model applied indicated that despite the projected changes in the climate variables (temperature and rainfall), in scenario 1 (the projected changes (5% increase) in rainfall). The result showed that climate variables (rainfall and temperature) have negative impacts on palm oil yield. The production trend is expected to be positive while changes in rainfall (5% increase), changes in temperature (2% increase) and simultaneous changes in rainfall (+5%) and temperature (+2%) will cause the yield to decline by 0.24%, 0.58%, and 0.82% respectively.

Keyword: Climate model; Oil palm; Malaysia; ARDL