

## Economic Impact of Climate Determinants on Rice Farmlands in Davao Region, Philippines

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### Keywords

- air humidity
- air temperature
- net revenue per hectare
- Ricardian model

### Abstract

Agriculture contributes largely to the economic growth of developing countries such as the Philippines. However, it is highly dependent on climate. The impending changes in climatic variables thus pose questions about its economic impacts on agricultural crops such as rice. There has been no study yet on the quantified positive or negative impact of changing weather patterns on the rice farmlands of Davao Region, Southern Philippines. Thus, this study used the Ricardian model in estimating the marginal effect of significant weather variables on the net revenue per hectare of rice farmlands in Davao Region. Farm net revenue per hectare was regressed on socio-demographic variables and on weather variables that affect rice growth, namely: rainfall, air temperature, air humidity, and wind speed. Primary survey on 44 rice farm households was conducted in 2015 for the socio-demographic variables and the computation of the farm net revenue per hectare, while secondary data for 2015 on the weather variables were obtained from the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) website. Results showed that air temperature and air humidity significantly affect the net revenue per hectare. Specifically, when air temperature increases beyond 27.03 °C, farm net revenue per hectare decreases. Farm net revenue also decreases when air humidity goes lower than 84.66%. Currently, the average air temperature and air humidity in the Davao Region are 26.75 °C and 85.18%, respectively. A unit increase in air temperature from the current average value reduces farm net revenue by PhP 116,420.50 per hectare, while a unit increase in air humidity raises farm net income by PhP 8,168.00 per hectare. This study recommends further educating people, particularly rice farmers, on mitigating the effects of changing weather conditions. Strategies and policies are crucial in order for farmers to adapt to these changing conditions.