IMPACTS OF RAINFALL SHOCKS ON TEA PRODUCTION: EVIDENCE FROM PLANTATIONS IN UVA REGION

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ABSTRACT

Tea is a major perennial plantation crop in Sri Lanka and it contributes significantly to the national economy. Tea plants are generally grown in rainfed systems and rainfall pattern and distribution are key factors which affect the variability of tea production. In recent years, there has been an increase in the frequency of extreme weather events. According to IPCC report 2014, the global climate has changed over the past century and projected to continue to change throughout the twenty-first century. It was reported that the extreme rainfall events will increase as a result of climate change. This study estimates the impact of rainfall shocks on tea production of Uva region based on monthly panel data from 12 different tea estates in Uva region over a 19-year period (2000-2018) employing the fixed-effect model. The deviation of the monthly average rainfall from the long term mean in the respective period was used to define positive and negative rainfall shocks. The diagnostic checks were performed in order to check the model validity and reliability of the model results. Tea production was regressed along with weather and non-weather variables as predictors. A statistically significant relationship between rainfall shocks and tea production was seen in the Uva region. Results revealed that both positive and negative rainfall shocks negatively affect tea production. The impact of negative rainfall shocks was higher than that of positive rainfall shocks on tea production. The findings suggest tea growers to take appropriate adaptation options to minimize the impact of both extreme rainfall events and dry days.

Keywords: Climate change; FGLS regression ; Panel data; Rainfall shocks; Tea production