

**THE EFFECTS OF SEASONAL VARIATIONS OF WEATHER ON
TEA PRODUCTION: A RICARDIAN ANALYSIS**

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ABSTRACT

The Ricardian approach has broadly been used in the literature to estimate the economic impacts of climate change on net revenues from agriculture in different geographies due to its ability to account for farmer adaptation. However, use of this approach on cross-sectional data has the limitation of omitted variable bias. Thus, panel Ricardian approach has been developed in the recent literature and application of it on the perennial cropping systems are seldom. This study uses a panel Ricardian approach to estimate the effects of seasonality of weather and its spatial heterogeneity on net revenues from tea production using a panel dataset of 49 tea estates that represents all three major tea growing geographic regions in Sri Lanka. The findings show that increase in the mean temperature during North East monsoon and the number of wet days during South West monsoon is beneficial to net revenue generation from the tea production. 100mm increase during South West monsoon rainfall increases the tea plantation net revenues by 14.2% and 1°C increase in South West monsoon temperature decreases the net revenues by 2.2%. Accounting for spatial heterogeneity of impacts, 1°C increase in South West monsoon temperature is found to be affected to revenue generation from tea plantations in up country by 14.3% positively and in low country by 6% negatively. The evidence from this study may be useful for Sri Lankan policymakers to facilitate producers with greater adaptability to climate change by accounting this seasonal uncertainty.

Keywords: Ricardian Approach, Panel data, Seasonality, Tea plantations, Sri Lanka.