

**CLIMATE CHANGE AND RISK PREFERENCES:
IMPLICATIONS FOR CROP DIVERSIFICATION
DECISION IN TEA PLANTATIONS**

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ABSTRACT

Tea is the third largest agricultural industry in the country and most importantly it is our biggest foreign exchange earner. Today Sri Lanka is a major player in the global tea industry and ranked as third largest producer in the world. Currently tea industry facing many risks, the serious risk is the climate change. The global climate has changed over the past century and is projected to continue to change throughout the twenty-first century (IPCC 2014). Assessments on climate change impacts on tea have shown that the majority of tea plantations in Sri Lanka are likely to be adversely affected due to climate change in 2050. Tea planters are facing many risks due to the climate change. Risk exposure and risk management are also inherent to tea plantations activities. The majority of tea plantations in Sri Lanka, except those at high elevations (>1200m), are likely to be adversely affected due to climate change in 2050. In the presence of the efficient crop insurance market system in the country, planters may insure themselves against these risks. Plantations face diverse types of risk, ranging from natural environmental instability such as distinctly climatic conditions (drought, floods, etc.), pests and diseases to market-related factors such as price volatility. The rising problem in Sri Lanka is the absence of perfect insurance markets. The study focused on to investigate the crop diversification as a response to plantation-level risk preference and environmental uncertainty and to assess the effects of risk aversion and weather variability on plantation level diversification. Altogether 27 tea estates selected from the Up country and Uva region and 15 years monthly historical data pertaining to production were collected from the selected estates. Plantation level diversity is the dependent variable and risk preference variables, weather variables and physical estate characteristics are the independent variables. According to the Hausman Specification test, the fixed-effect model was selected and the fixed effect model further check for diagnostics. Therefore Cross-sectional time-series FGLS regression results were used for the interpretation. The findings suggest that both weather variability and risk aversion tend to increase the level of diversified crop portfolio. In particular, in Sri Lanka, the variability of rainfall and the monthly mean temperature are crucial and more relevant to the choice of crop diversification.

Key Words: Climate Change, Risk preferences, Tea Industry, Crop diversification, Panel data, FGLS regression