Impact of Climate Change on Rice Production in Thailand

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Our goal is to evaluate crop yield impacts from likely climate changes for Southeast Asia. To do so we link soil science crop modeling, weather simulators, and global climate change modeling into an integrated economic model of multistage rice production. The economic model is estimated with detailed monthly data on inputs, operations, and environmental data over a five-year period. We then forecast impacts under two different future economic scenarios, one assuming high future global anthropogenic[1] pollution emissions, and the other assuming low. We compare results of the integrated economic model with those of a biophysical model, inputting into both the stochastic realizations of a weather generator, calibrated against the present no-climate benchmark and against the two climate change scenarios—mild and severe. The more realistic forecasts from the socioeconomic model thus include important farmer behavioral/mitigation strategies. We discuss both aggregate/average impacts and heterogeneity.