

## Public Abstract

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Title:Climate Variation and Corn Price Volatility: A Partial Equilibrium Model

Projected future climate changes in the US Corn Belt provides motivation to study how these changes will affect the volatility agricultural markets. Recent publications focused on how these changes in climate and climate variability affect the volatility of crop prices and yields, but we are aware of no research that focuses on how the changing of climate variability alone will affect the volatility of yields and area, as well as the consequences it may have on market quantities and prices. Considering these indicators, past publications do not account for the timing and intensity of weather variables when estimating the price impacts of climate driven changes to yields and area.

This study builds on the previous literature to estimate how the timing of specific weather variables, important to corn yields and area, will affect the volatility of corn prices. More specifically, this study looks at how climate change may affect the timing and frequency of precipitation events, and how this will affect the volatility of crop markets. The study uses a partial equilibrium model to generate a supply and demand balancing corn price under future climate scenarios to estimate the effects of increased climate variability. The study finds that, under future climate scenarios, corn price volatility could increase, which may affect producer receipts and could potentially increase the taxpayer cost of certain agricultural policies. The study comes to this conclusion by estimating that future crop yields and area may become more volatile under projected future climate scenarios where increased climate variation is present.