Economic Review

Drought Risk to the Agriculture Sector

by: David Rodziewicz and Jacob Dice

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Farmer losses from extreme drought represent an economically relevant share of crop production values, and may increase in coming decades as global temperatures rise.

Drought is a perennial and long-term risk that can negatively affect the farm economy through lower yields, loss of crops, reduced farm revenues, and lower sales for farm suppliers. As risks from climate change mount, understanding how drought will affect farmers across the country has become even more important. Drought risk can vary by region, crop type, and production method, and may disproportionately affect some farmers more than others. Although many farmers have crop insurance to protect against losses, insurance does not cover all of their crop's value, and even insured farmers face losses from drought. These losses can negatively affect farm finances, resulting in financial strain that may spill over into the broader agricultural economy.

David Rodziewicz and Jacob Dice analyze the relationship between county-level drought exposure and direct farmer losses (specifically, crop insurance deductibles) from 2000 to 2019. They find that farmer losses from drought vary by crop type: although losses rise steadily along with drought intensity for corn and wheat, losses spike noticeably in extreme drought for soybeans. These losses represent an economically relevant share of crop production values: farmer losses from extreme drought can reach 20 percent of production value for corn and wheat and 35 percent for soybeans.

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