Unveiling the Dynamics of Climate Change Effects on US Corn Yields: A Novel Approach for Measuring Adaptation

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Abstract

This study employs a unique approach to assess the effects of climate change on US corn yields, emphasizing short-term and long-term impacts while quantifying adaptation. Leveraging a comprehensive dataset encompassing corn production and weather data, we challenge conventional assumptions by introducing time and county-varying coefficients that reveal the dynamic nature of adaptation. Our findings indicate that past temperatures significantly shape farmers' expectations, influencing their adaptive strategies. Specifically, we identify a negative impact of hot temperatures, which diminishes in the presence of higher past temperatures, reflecting adaptation. We simulate the effects of a $2°C$ temperature increase, uncovering substantial short-term negative impacts that attenuate over the long term. Our research not only advances understanding of climate change adaptation in agriculture but offers valuable insights for policymakers addressing climate challenges in the agricultural sector.

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