

# Faith in human ingenuity, risk perceptions, and support for climate change adaptation among Corn Belt farmers

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## Introduction

In an increasingly globalizing society, people are ever more reliant on abstract or expert systems for managing risks (Giddens, 1990). This is especially relevant for large-scale hazards from which people cannot easily withdraw, such as nuclear warfare (Freudenburg, 1993), or when people have to make decisions under conditions of uncertainty, such as how to best adapt to climate change (Dietz, 2007).

In this study, we explore relationships between abstract faith in human ingenuity and Midwestern U.S. corn farmers' climate change-related risk perceptions and support for climate change adaptation.

## Method

Data are from a stratified random sample survey of 4778 corn farmers in 11 Midwestern states, who grew at least 80 acres of corn and had \$100K of gross farm income. We employ path analysis (ML, DWLS and WLSMV estimates), to test the following hypotheses:

(1) Higher faith in the power of human ingenuity is related to higher levels of farmers' self-confidence in their ability to adapt to climate change.

(2) Higher self-confidence is associated with lower levels of farmers' climate change-related risk perceptions and lower levels of willingness to take actions needed for preparedness.

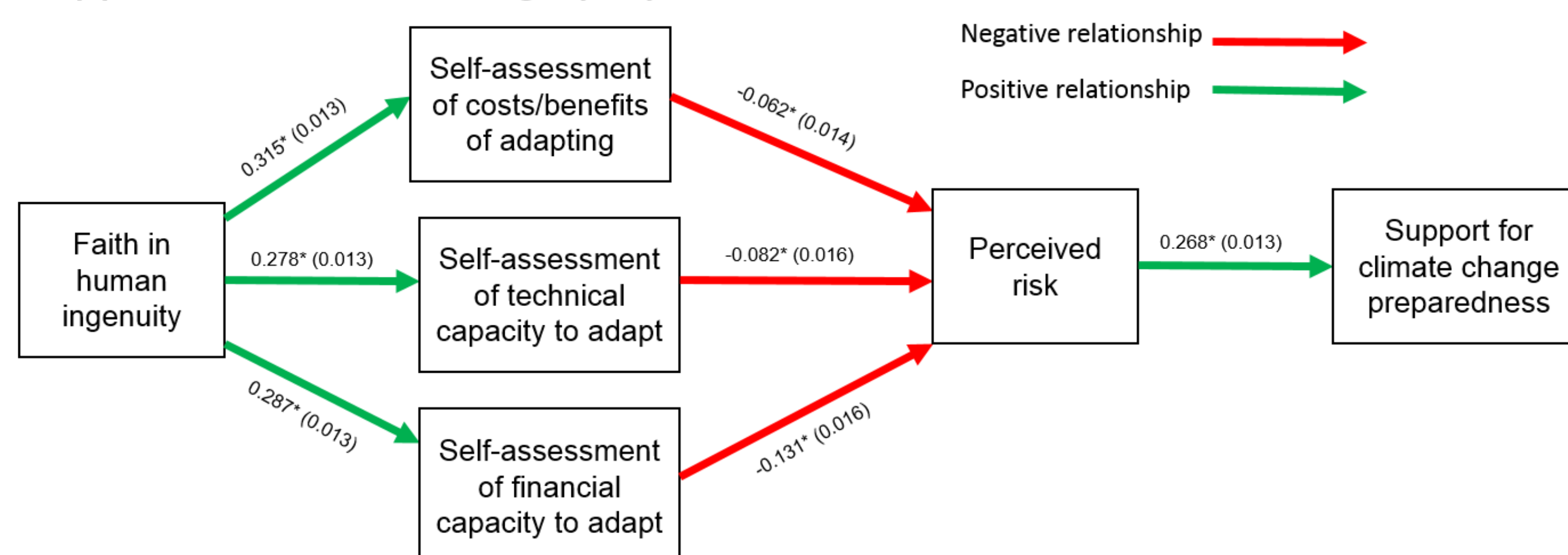
### Description of variables used in the study

	Questions*
Faith in the Power of Human Ingenuity (faith)	Climate change is not a big issue because human ingenuity will enable us to adapt to changes
Self-Assessment of Technical Capacity (tech)	I have the knowledge and technical skill to deal with any weather-related threats to the viability of my farm operation
Self-Assessment of Financial Capacity (finance)	I have the financial capacity to deal with any weather-related threats to the viability of my farm operation
Self-Assessment of costs/benefits (costben)	There's too much uncertainty about the impacts of climate change to justify changing my agricultural practices and strategies
Perceived Risks (risk)	My farm operation will likely be harmed by climate change
Support for Adaptation (adapt)	I should take additional steps to protect the land I farm from increased weather variability

\* All responses are coded on a 5 point agreement scale (1 = strongly disagree, 5 = strongly agree)

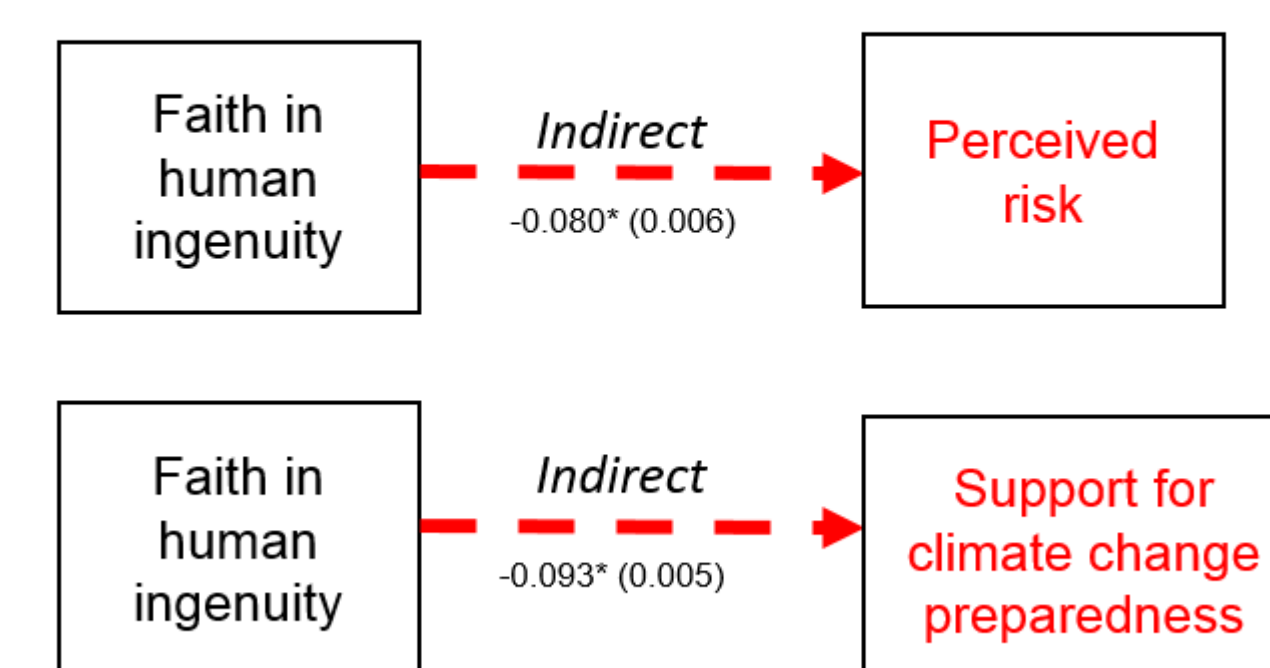
## Results and Discussion

Paths showing effects of faith in human ingenuity on perceived risk and support for climate change preparedness



- Higher scores on the “faith in human ingenuity” variable are positively related to farmers’ confidence in their own capacity to adapt.
- Higher scores on the capacity variables are associated with lower levels of farmers’ concern about negative impacts of climate change on their own farm operations.
- Lower risk perceptions, in turn, are associated with lower levels of support for farm-level adaptation.

### Negative Indirect effects



## Discussion and Conclusion

Findings indicate that farmers who believe that climate change is not an important issue because human ingenuity will enable society to adapt are less concerned about the impacts of climate change and are less likely to believe that they should take adaptive actions on their own farms.

Future research will attempt to control for adaptation measures that farmers have already established on their farms to evaluate whether abstract faith in human ingenuity may be leading to overestimation of farm resilience.

Many farmers are confident in their capacity to adapt to climate change. Extension and outreach should appeal to that confidence while also helping farmers to evaluate the actual resilience of their cropping systems.

## Acknowledgements

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