Social Capital and Farmers' Adaptive Responses to Water Restrictions

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Introduction

Water is a significant resource in the natural environment, crucial to successful crop management. The need to share this vital resource with multiple water users has led to a recent water settlement agreement between members of the Surface Water Coalition and Idaho Groundwater Appropriators (IDWR 2015).

- Agriculture in Idaho accounts for 6% of the state's GDP ($5.9 billion) and is the primary occupation in rural communities.
- Eastern Snake River Plain Aquifer provides about a third of total water used in irrigation
- Senior water right holders place water call based on declining spring flows into the Snake River from Blackfoot to Milner Dam
- Settlement prevents total curtailment of water rights junior to 1989 with goal to restore spring flows by managing and replenishing aquifer
- Groundwater users required to reduce their collective consumption by an average of 240,000 acre feet per year (average of 12.9% reduction per farmer)

Eastern Snake River Plain Aquifer

MILES Managing Idaho's Landscapes for Ecosystem Services

IDAHO EPSCoR

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Research Objectives

- Research question: How does social capital shape perceived adaptive capacity for farmers facing new water restrictions?
- Hypothesis: Farmers with more social capital will perceive increased adaptive capacity to new water restrictions.

Methodology

- Social capital is features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives (Putnam 1995).
- Independent variable: Social capital
  - ➢ Long-term relationships in community
  - ➢ Participating in joint business ventures
  - ➢ Embracing leadership roles
- Dependent variable: Perceived adaptive capacity
  - ➢ Expressions of confidence in ability to successfully cope with new water restrictions

- Conducted semi-structured interviews with 30 farmers in the American Falls-Aberdeen Groundwater District January to July 2017
- Analysis by coding, allowing themes to emerge

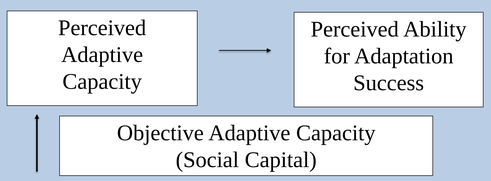
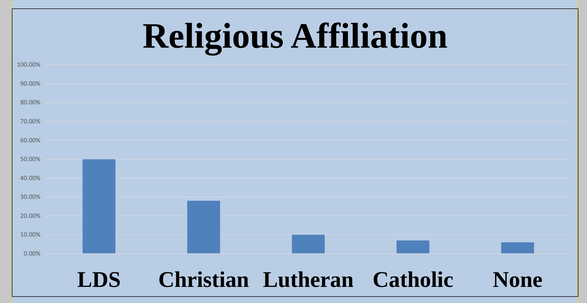
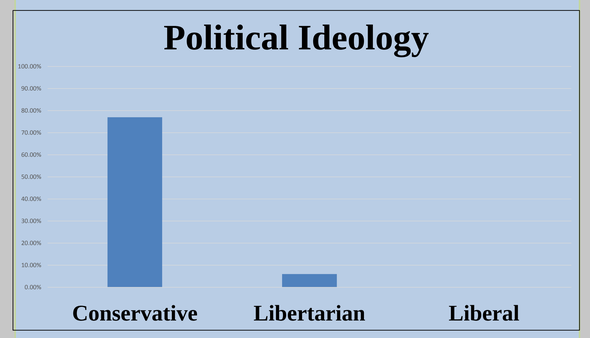


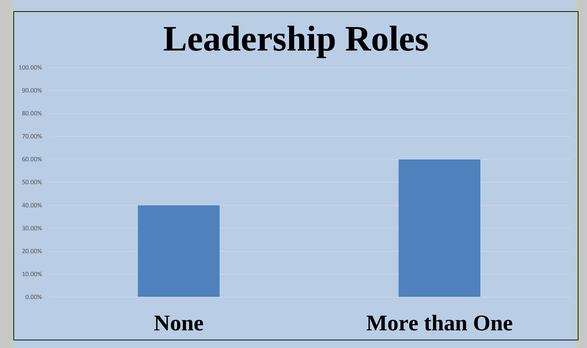
Diagram: Adapted from the MPPACC (Grothmann and Patt 2005)

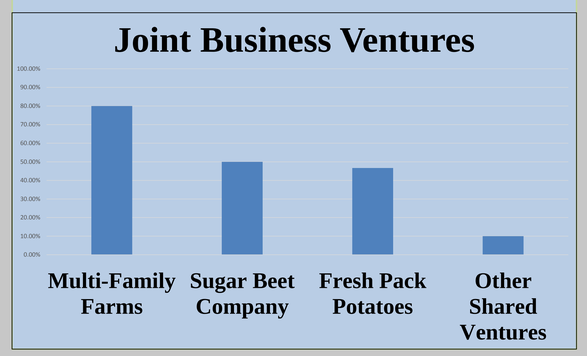
Descriptive Statistics

- Farmed land: 93,815 acres, average 3,235 acres
- Age: 57 years old, with a ranges from 27 to 87
- Produce: Potatoes, sugar beets, malt barley, wheat, corn, other including oil seeds and beef









Preliminary Findings

Involvement in community

- "Yeah, I feel we sort of all know each other and I think it's pretty good."
- "No. I don't have time for that."

Participating in cooperative business ventures

"I think we're connected pretty good. It's kinda mostly through our business, trying to keep our business in the community...That's what's nice about a small community, because you get to know these people."

Embracing leadership roles

"Reason I served as a (identifiable leadership role) was to make sure that the (policies) were good for farmers and myself… I have to rely on hopefully my neighbors who are looking out for everybody's interests 'cause their interests are gonna be about the same as mine. It's like they don't serve on (this) board. I do."

Expression of adaptive capacity

"I can adapt and if we are over-appropriating the water then I have to and so does everyone else. ...It's very important to me because as long as it remains an agricultural operation, I have a livelihood."

"For us, it was hard to meet the reduction requirements…We had to take a reduction, whether we liked it or not…Everyone is going to try and think for themselves…and they all have different goals or whatnot in mind and they all understand the risks they took. They just don't want to acknowledge it."

"You kind of feel like you are dealing with something you really can't control much. It's a worry."

Sources

Grothmann, Torsten and Anthony Patt. 2005. "Adaptive Capacity and Human Cognition: The Process of Individual Adaptation to Climate Change." *Global Environmental Change* 15:199–213.

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