



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Can Social Capital Boost Irrigation Capital? Empirical Evidence from North China

Yefan Nian, Qiuqiong Huang

Department of Agricultural Economics & Agribusiness
University of Arkansas

Selected Paper prepared for presentation at the Agricultural & Applied Economics Association's 2017 AAEA Annual Meeting, Chicago, Illinois, July 30 - August 1, 2017

Copyright 2017 by authors. All right reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided this copyright notice appears on all such copies.

Can Social Capital Boost Irrigation Capital?

Yefan Nian, Qiuqiong Huang (contact: ynian@uark.edu; qqhuang@uark.edu)

Department of Agricultural Economics & Agribusiness, University of Arkansas, Fayetteville

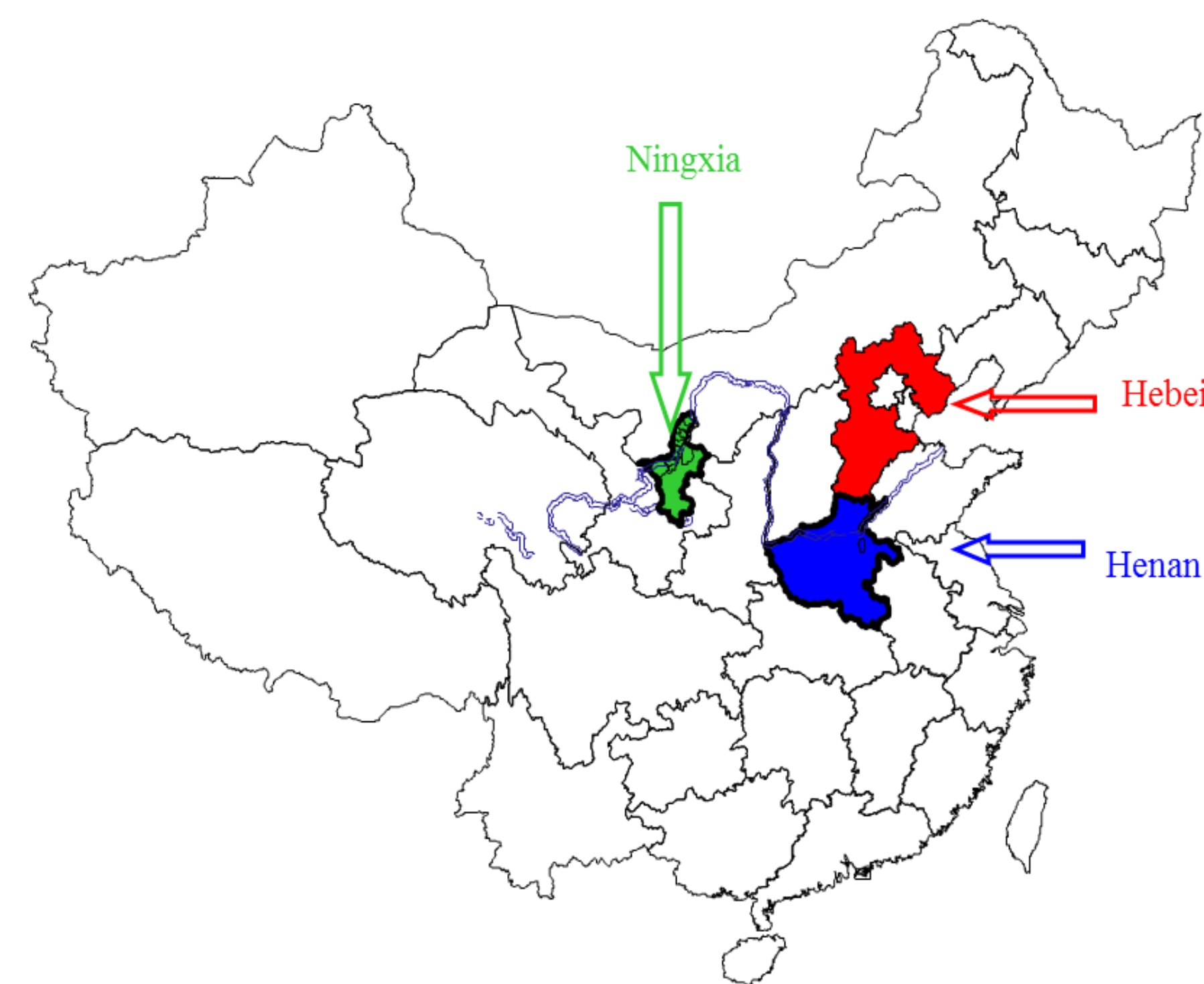
BACKGROUND

- Crop production in China relies heavily on irrigation, but 50% of irrigation water is wasted due to poorly maintained or dysfunctional irrigation infrastructure in rural villages (Xu, 2001).
- China's fiscal policy reforms have stripped village leaders of the financial resources they previously had for irrigation investment. Villagers became the key players of public surface water projects investment (Boyle et al., 2014).
- Previous studies have identified positive correlations between social capital and collective actions (e.g. Leonard et al., 2010).

RESEARCH QUESTION

Does social capital influence investment in public surface water irrigation projects?

CHINA WATER INSTITUTION AND MANAGEMENT SURVEY



- Sample area: 3 provinces in 2 river basins in northern China, one of the most water scarce areas world wide.
- Sample size: 191 households in 54 villages.
- The study uses 2007 and 2011 rounds of CWIM data.

SOCIAL CAPITAL



Villagers building canals in rural China.

- Social capital is the glue that holds society together.
- It has two key dimensions: relationships among community members such as social networks; and trust, reciprocity and shared rules and norms (Harpham et al., 2002).

IMPLICATIONS

- In the past 20 years, China's government has mostly focused on establishing WUAs and directly invested in surface water irrigation projects.
- Our research indicates that this may not be an effective solution. WUAs seem to decrease the amount of cash contributed by villagers. Investments directly from the government may dampen villagers' incentives to contribute to public surface water irrigation projects.
- Future research should focus on what the government could do to increase social capital in rural China.

ESTIMATION AND RESULTS

		(1)		(2)
		Sequential logit model		Fixed effects model
		Contributed	Contributed cash	% of total village investment from villagers
Social capital variables				
Social trust	Trust in leaders [¶]	0.00673	0.0476	0.178**
	Trust in villagers [¶]	-0.0758	1.038*	0.197**
Social network	WUA participation rate	-0.908	4.545***	-0.447*
Rules and Social norms	Report rule-breaking actions	-0.147	0.883*	0.311
	Sanction	-0.900*	1.438**	-0.281*
	N conflicts	0.0281	-0.0333	-0.0035***
	Supported by village resources [¶]	-0.127	-0.622**	-0.247*
	Supported by villagers [¶]	0.517**	-0.333	0.0906**

❖ Standard errors in parentheses: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

❖ Control variables: HH size, age, education, % female, % migrants, % working off-farm locally, farm size, N plots, N households in village, income per capita in village, average education, lagged % villagers with off-farm jobs, % lined canal, distance to main road. Coefficients not reported but available upon request.

¶ Factor analysis is used to extract the principal factor of these social capital variables.

- More trust in fellow villagers motivates villagers to contribute cash to public surface irrigation projects and boosts amounts of contributions.
- A prominent social network, measured by higher participation rates on Water User Associations (WUAs), increases the likelihood of villagers' contributions of cash, but reduces the amount.
- If rule-breaking is more likely to be reported, villagers are more likely to contribute cash but not by significant amounts.
- More support from village resources when villagers experience droughts reduces the likelihood of villagers' contributions of cash. It also negatively affects the amount of cash contributed by villagers.

REFERENCES

- Boyle, C. E., Huang, Q., & Wang, J. (2014). Assessing the impacts of fiscal reforms on investment in village-level irrigation infrastructure. *Water Resources Research*, 50(8), 6428-6446.
- Harpham, T., Grant, E., & Thomas, E. (2002). Measuring social capital within health surveys: Key issues. *Health Policy and Planning*, 17(1), 106-111.
- Leonard T, Croson RTA, de Oliveira ACM. 2010. Social capital and public goods. *The Journal of Socio-Economics* 39(4):474-81.
- Xu, Z., 2001. Studying on increasing water use efficiency (in Chinese). *J. China Water Resour.* 25-26