NICHOLAS A. POTTER

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DOCTORAL STUDIES

expected 2021

PhD in Economics

Washington State University

Dissertation: “Essays in Water Economics”

Committee

Professor Michael Brady	Professor Jonathan Yoder	Professor Joseph Cook
School of Economic Sciences	School of Economic Sciences	School of Economic Sciences
Washington State University	Washington State University	Washington State University
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Fields

Environmental and Natural Resource Economics, International Economics

WORKING PAPERS

Climate and irrigated agriculture: Evidence from cash rents (Job Market Paper)

We use county-level cash rent prices for irrigated and nonirrigated land to evaluate the relationship between temperature and agricultural production value in the context of changing water supplies due to reduced snowpack. Cash rents reflect expectations about profits and allow for a Ricardian analysis of impacts that accont for adaptation strategies by producers. In addition, cash rents are less subject to non-farm factors as described in Ortiz-Bobea (2019). While irrigation allows for a greater range of adaptation strategies through a diverse mix of high value crops, water supplies are limited by natural snowpack storage – a situation common in the western U.S. as well as parts of Europe and South America. We use cross-sectional variation in rents to estimate the effect of temperature on production value. To account for water supplies, we use a novel panel dataset to estimate water use as a function of precipitation and snow-water equivalent in each county’s watershed. Our results provide insight into the extent of water supply issues facing irrigated agriculture in arid regions as temperatures increase.

On the frontier of water rights: Forfeiture then and now

Forfeiture of water is an important limitation on water rights in the western United States, where the right to water is allocated according to the priority date of the right. While often criticized in the modern context for incentivizing wasteful water use and increasing transaction costs, forfeiture served important functions during the establishment of the western frontier of the United States. We develop a theoretical model of water property rights that reflects forfeiture policy in which the maintenance cost of the right involves the use of the resource itself. This has broad implications for the optimal forfeiture period, particularly in the present era of increased water demand and changing water supply. A crucial factor is the degree of abandonment of claims, which plays a role during the initial allocation of the resource but diminishes as rights are more firmly established and the value of water increases. While a longer forfeiture period may be more optimal in the present, institutional path dependency plays a role in limiting current policy responses.

Property rights and the relationship between conflict and drought

Recent work investigating the effect of drought on conflict has focused on the extent to which drought affects the risk of small scale sub-national conflict between groups (Almer et al. 2017; Harrari and La Ferrara, 2017). While estimating the causal effect of drought on small scale conflict is important, understanding the mechanisms that drive that relationship can help societies manage their water resources and mitigate risk of conflict. Societies that successfully manage scarce resources may weather the storm. Half of all small-scale conflicts in our sample occur in just ten countries, suggesting that variation at the country level plays an important role in determining the risk of conflict as a response to drought. One such role may be property rights for water. Well-defined property rights can help to govern access and facilitate Coasian negotiation and legal recourse. Yet rights that exclude groups may also act to increase conflict. In this paper we examine how property rights work to mitigate drought-induced conflict in Africa and Latin America. In our primary analysis, we employ a random effects model specified to allow for property right variation at the country level while also estimating the "within" effects of drought on small scale conflict. Preliminary results suggest that while drought has an effect on the risk of conflict, variation between countries plays an important role. Some evidence exists that stronger private property rights, especially when providing for traditional ownership by indigenous peoples, reduce the likelihood of conflict.

PUBLICATIONS

2019 **rnassqs: An R package to access agricultural data via the USDA National Agricultural Statistics Service (USDA-NASS) 'Quick Stats' API**

Journal of Open Source Software, 4(43), 1880, https://doi.org/10.21105/joss.01880

SOFTWARE

2019 **`rnassqs`: Access the NASS QuickStats API**

R package. https://CRAN.R-project.org/package=rnassqs, doi: 10.5281/zenodo.2662520

2019 **`vcovConley`: Conley spatially-adjusted standard errors**

R package. https://github.com/potterzot/vcovConley

Contributions to other software:

- ropensci/rnoaa: R interface to many NOAA data APIs
- ghgvcr: R implementation of the Greenhouse Gas Value Calculator

CONFERENCE PAPERS AND PRESENTATIONS

2020 **"Reproducible geoprocessing of agricultural, climate, and land use data at scale with R"**
The Workshop in Environmental Economics and Data Science (TWEEDS), Portland, OR

2020 **"Do property rights institutions mitigate drought-induced conflict?"**
Agricultural and Applied Economics Association Annual Meeting, Kansas City, MO

2020 **"Limitations on water rights in the West: The economic logic of forfeiture"**
Western Agricultural Economics Association Annual Meeting, Online

2019 **"On the frontier of water rights: Beneficial use and relinquishment in settling the Columbia River Basin"**
Universities Council on Water Resources Annual Meeting, Snowbird, UT

2018 **"Climate impacts on agricultural productivity in the fruitful rim"**
Northwest Climate Conference, Boise, ID

2018 **"Using climate analogues to obtain a causal estimate of the impact of climate on agricultural productivity"**
Agricultural and Applied Economics Association Annual Meeting, Washington, D.C.

PROFESSIONAL TALKS

April 2020 **"Using `data.table` for fast processing of large datasets"**
R Working Group, Washington State University*

April 2019 **"On the frontier of water rights: Beneficial use and relinquishment in the wild west and now"**
Environmental Economics Lunch, Washington State University

November 2018 **"A bayesian model of crop choice using STAN."**
R Working Group, Washington State University

October 2018 **"Can crop switching mitigate the effect of climate on agricultural productivity in the fruitful rim?"**
School of Economic Sciences Seminar, Washington State University

February 2018 **"Hierarchical regression modeling with STAN"**
R Working Group, Washington State University

March 2017 **"Causal bayesian estimates of minimum wage impacts"**
R Working Group, Washington University

November 2017 **"A matching approach to estimating the impact of climate on agricultural productivity"**
R Working Group, Washington State University

TEACHING EXPERIENCE

Fall 2018 **Instructor, Fundamentals of Microeconomics**
211 students, rated 4.2 out of 5

2020 | 2018

Instructor, Software and Data Carpentry Workshops

- Maine Medical Center, Portland, ME, April 2019
- Southwest Indian Polytechnical Institute, Albuquerque, NM, September 2019
- Washington State University, Pullman, WA. February 2018, October 2018, April 2019, October 2019

RELEVANT EXPERIENCE

present | 2018

Research Assistant, Water for Agriculture
Washington State University

- Professors Jonathan Yoder and Joseph Cook

2018 | 2017

Research Assistant, Farmer Participation in Conservation Programs
Washington State University

- Professors Hayley Chouinard, Michael Brady, Phillip Wandschneider

2017 | 2016

Research Assistant, Center for Sustaining Agriculture and Natural Resources
Washington State University

2015 | 2012

Research Assistant, Measure to Manage
Washington State University

2012 | 2011

Research Assistant, Moving to Opportunity Project
National Bureau of Economic Research

2011 | 2008

Business Development Volunteer, Guinea and Niger
United States Peace Corps

2008 | 2006

Research Scientist, Bureau of Business and Economic Research
University of New Mexico

PROFESSIONAL ACTIVITIES

2019

President, School of Economic Sciences Graduate Student Association
Washington State University

2018

Vice-President, School of Economic Sciences Graduate Student Association
Washington State University

Referee Services

- Journal of Open Source Software (JOSS), 2019
- Agricultural and Applied Economic Association submitted abstracts, 2017, 2018

PRIOR EDUCATION

2005 **M.S. in Applied Mathematics**
University of Massachusetts - Amherst

2002 **B.A. in Economics**
Hampshire College

AWARDS

2018 **Student Scholarship, StanCon 2018**

2017 **Tesfaye Girma Deboch Graduate Fellowship, Washington State University**