

# Accepted Manuscript

Using agent-based models to compare behavioral theories on experimental data:  
Application for irrigation games

Marco A. Janssen, Jacopo A. Baggio

PII: S0272-4944(16)30042-1

DOI: [10.1016/j.jenvp.2016.04.018](https://doi.org/10.1016/j.jenvp.2016.04.018)

Reference: YJEVP 1036

To appear in: *Journal of Environmental Psychology*

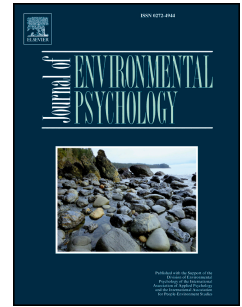
Received Date: 12 February 2015

Revised Date: 4 April 2016

Accepted Date: 5 April 2016

Please cite this article as: Janssen, M.A., Baggio, J.A., Using agent-based models to compare behavioral theories on experimental data: Application for irrigation games, *Journal of Environmental Psychology* (2016), doi: 10.1016/j.jenvp.2016.04.018.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## Using agent-based models to compare behavioral theories on experimental data: Application for irrigation games

Marco A. Janssen<sup>1,2</sup> and Jacopo A. Baggio<sup>1,3</sup>

<sup>1</sup> Center for Behavior, Institutions and the Environment, Arizona State University

<sup>2</sup> School of Sustainability, Arizona State University

<sup>3</sup> Department Environment and Society, Utah State University

Emails: [Marco.Janssen@asu.edu](mailto:Marco.Janssen@asu.edu); [jacopo.baggio@usu.edu](mailto:jacopo.baggio@usu.edu)

### Abstract

Behavioral experiments have demonstrated that people do cooperate in commons dilemmas. There are alternative theories that are proposed to explain the data. We will use agent-based models to compare alternative behavioral theories on a series of experimental data of irrigation games. The irrigation dilemma captures situations of asymmetric access to common resources while contributions of all participants are needed to maintain the physical infrastructure.

In our model analysis we compare various alternative theories, including naïve simple ones like selfish rational actors and altruistic actors. We contrast these with various alternative behavioral models for collective action as well as inclusion of other-regarding preferences. The systematic comparison of alternative models on experimental data from 44 groups enables us to test which behavioral theories best explain the observed effects of communication. We do not find that one theory clearly outperform others in explaining the data.

**Keywords:** Common pool resources, experimental data, agent-based models, calibration

Download English Version:

<https://daneshyari.com/en/article/5034903>

Download Persian Version:

<https://daneshyari.com/article/5034903>

[Daneshyari.com](https://daneshyari.com)