



4-2013

Experimental Economics Comes to Life – Prior Appropriations in the Mimbres River Basin

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Recommended Citation

Seeborg, Melissa '13 (2013) "Experimental Economics Comes to Life - Prior Appropriations in the Mimbres River Basin," *The Park Place Economist*: Vol. 21
Available at: <https://digitalcommons.iwu.edu/parkplace/vol21/iss1/5>

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Abstract

In this short piece, Melissa Seeborg describes a study to explore price differentials in the water leasing market, led by Professor Craig Broadbent.

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Melissa Seeborg

Early in the 2012 fall semester, a group of thirteen seniors gathered in the CLA lab, knowing nothing more than that they had signed up for an incentivized experiment under Professor Broadbent's direction. It was quickly learned that they were blind subjects in a study searching to understand how water-leasing markets operate under the legal framework of prior appropriations, in which senior users have priority of water use over junior users. Each student was assigned a user on the Mimbres River, and logged into a computer program specially designed for the experiment. Professor Broadbent versed participants on the concept of prior appropriations, the landscape of the area in study, and what the main goal for each user was. However, once the software began running, the students were on their own to decide the allocation of their water and the price of trades with other members. No one user had the same amount of water rights in the market, and trading quickly became heated as students tried to make the most of the limited resource.

The making of this project was not a simple task. The design process of the interface began in 2009, with final results obtained in October of 2012. Collaborators worked together across the country and included economists from the University of New Mexico and University of Chicago, programmers from the University of Texas, and a group of hydrologists from the Sandia National Laboratories in Albuquerque. Preliminary results indicate that during times of drought junior users do not have access to water and are entering the market to effectively lease water from senior users. There is also evidence of crop protection through stacking, which is the idea of increasing crop yields by allocating more water to them.

Hayley Harroun, a 2012 December economics and environmental studies graduate, had the opportunity to focus her economics senior seminar paper on Professor Broadbent's experiment to see whether or not price differentials occurred in the water leasing market tested. She concluded that during times of a drought when a price differential did occur between the oldest water rights and the junior users. Hayley viewed the experiment as beneficial to all, stating: "My laboratory experiment, creating a hypothetical water leasing market, used test subjects from the senior class in the economics department at IWU. Because of this I wasn't the only student learning about experimental economics and the real world application of resource economics, the students that participated in the experiment were as well. I believe that provided a real learning opportunity for all of us."

