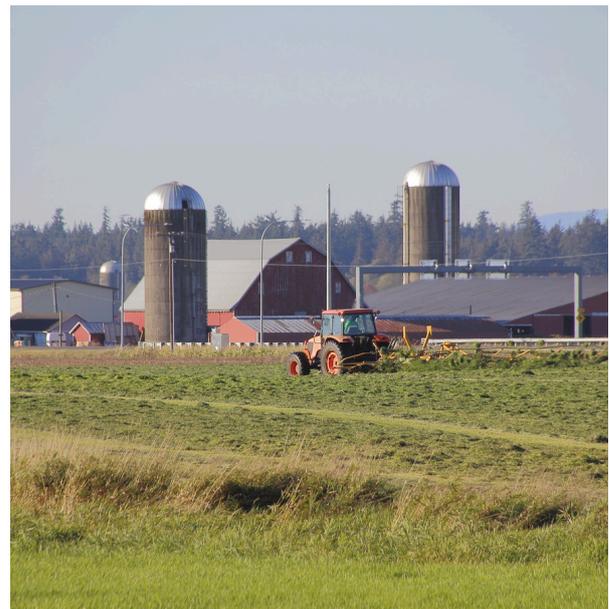


# Do “Nonpecuniary Benefits of Farming” or “Psychological Ownership” affect Water Markets?

*Participation in water markets may be influenced by psychological factors such as nonpecuniary (i.e. non-monetary) benefits of farming and ownership effects. While this work failed to detect significant impacts of these factors on hypothetical water leasing and selling scenarios, it laid the groundwork for future studies looking to understand water right holders’ lack of water market participation.*

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*This research highlight is based on published work (see last page).*



Productive irrigated agriculture regions, such as central Washington State, can use water markets to transfer water from one use to another and minimize revenue losses from drought. Despite the benefits of water markets, they are not commonly

used. The lack of participation in them has often been attributed to administrative hurdles and transaction costs. Two possible causes for the lack of participation that have received less attention are the nonpecuniary benefits of farming and ownership effects

(defined in Table 1). These causes have not been previously studied in a water market setting, so this work investigates whether or not nonpecuniary benefits of farming and psychological ownership affect water market participation and seller offers.

Table 1. Psychological Factor Definitions	
<b>Nonpecuniary benefits of farming</b>	Non-monetary benefits from operating a farm that increase the farmer’s utility (overall satisfaction or happiness), like getting to work outside or being your own boss.
<b>Psychological ownership</b>	A behavioral phenomenon in which individuals gain utility from feeling possession over a good, such as their grandmother's wedding ring or water rights.

This work ran an online field experiment for Washington State water rights holders. In the experimental setting, we provided the value of water rights so water rights holders can choose to submit an offer to lease or sell their water rights for a fair price. The experiment is incentive-compatible, so every participant can achieve their own best outcome by acting according to their true preferences. In the experiment, water rights holders are assigned a hypothetical corn farm with senior water rights and then complete a leasing and selling scenario, as follows:

- **Leasing Scenario:** Participants may earn their regular income by farming or earn more income by participating in a one-year water lease.
- **Selling Scenario:** Participants may earn their regular income by farming or potentially earn more by participating in a permanent water sale.

The experiment explores how a person’s psychological relationship to the land might influence their decision-making by assigning them to different treatment groups (see Table 2). First, to examine nonpecuniary benefits of farming,

half of participants are assigned to be “owner-operators” of the hypothetical farm and half as “owner-nonoperators” who lease their land to their neighbors to farm and split profits evenly with them at the end of the year. Second, to examine psychological ownership effects, half of the participants are “primed” to think about their own water rights and land before they participate in the two hypothetical scenarios and half are “not primed”. Given the range for seller offers, this work examines what will occur when water right holders are allowed to lease and sell their water rights without legal or market barriers. When trades do take place, how will seller offers vary?

From March to May 2023, surface water right holders (n=2,322) registered in one of four Washington basins were recruited to participate in the experiment: Methow, Okanogan, Walla Walla, and Yakima. The water right holders were mailed informational materials inviting them to participate and 181 people participated (7.8% response rate).

Results show “primed” participants had slightly lower leasing scenario market participation than “not

primed” participants. Surprisingly, results also showed nonpecuniary benefits of farming decreased seller offer prices for water rights (also known as Willingness-to-Accept or WTA) so “owner-nonoperators” had a higher WTA compared to “owner-operators”. The research team speculates this is because landowners who are “owner-nonoperators” are concerned water market participation could negatively impact or discontinue their relationship with their neighbor since the neighbor will no longer be able to farm their land and earn additional income. While it is common for “owner-nonoperators” to have farms be operated by neighbors in the real world (for various reasons like being older and unable to manage it themselves or having moved to another area for work), this scenario may be biasing results.

Selling scenario findings were similar to leasing scenario findings. However, 90% participated in the leasing scenario while only 67% did so in the selling scenario. This result could reflect skepticism and disinterest among water rights holders to lease or sell their water, which would tend to limit water market participation in the real

Table 2. Experimental design (hypotheses in parenthesis)			
		Nonpecuniary benefits of farming ( <i>Operator</i> )	
		“Owner-Nonoperator” – Assigned to be owner who leases land to neighbor	“Owner-Operator” – Assigned to be owner and operator
Psychological ownership (Ownership)	“Not primed” – questions after scenarios	<i>Control</i> (highest predicted water market participation and lowest WTA)	<i>Non-pecuniary benefits only</i>
	“Primed” – questions before scenarios	<i>Ownership effects only</i>	<i>Ownership + Nonpecuniary benefits</i> (lowest predicted water market participation and highest WTA)

world. Overall, we failed to detect nonpecuniary benefits of farming and psychological ownership effects significantly impacting hypothetical leasing and selling scenarios. This does not mean that they are not present in real water markets and additional rigorous work needs to be done to better understand water right holders and water market participation.

**Rolling farm landscape in the Palouse region of Washington State.**



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Full paper available at:

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