

# When is the price right for selling water?

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Research from the University of Adelaide has provided new insights into how Australian farmers and irrigators may respond to certain market conditions, and when they are more likely to sell their water entitlements.

The study has resulted in a world-first model that could be used to help develop water markets in areas that do not exist, as well as better understanding how to apply environmental policy, such as water buyback schemes. And it's a model that could be used in other countries across the globe.

The selling or buying of water entitlements is a contentious and politically charged issue, with competing environmental and agricultural interests. But it's also an issue that needs more evidence around it to ensure success, says research leader Associate Professor Sarah Wheeler, an Australian Research Council (ARC) Future Fellow in Global Food Studies at the University of Adelaide.

"Agriculture that relies on irrigation is the largest water user in many countries in the world. Despite water markets being in existence for many years, there has been a real lack of knowledge about water price elasticity – that is, how do changes in the price of water entitlements influence changes in supply and demand of water," she says.

"Better understanding responses to water [prices](#) is essential for evaluating various environmental and economic policy initiatives, such as those designed to address water shortages. For example: what is a

'fair' price irrigators should expect to give up their water for the environment?"

Associate Professor Wheeler and her team used Australia's Murray-Darling Basin as a case study. The team used survey responses from 535 irrigators across three states to find out how much they would buy or sell water entitlements depending on different prices. They then validated their experimental model by combining the results with actual data on what irrigators were buying and selling.

So when is the price right? Associate Professor Wheeler says there is no single answer to that question.

"What the model gives us is a range of prices that will stimulate buying and selling behaviour among irrigators under certain supply and demand conditions, and depending on the type of water entitlement and characteristics of the irrigator. So it's not as simple as saying that everyone will buy or sell at a certain price," she says.

"However, we can say with some certainty that a 1% increase in a high-security water entitlement price will increase the water supplied by irrigators by up to 0.43%. Irrigators will supply more water at high prices, and we also know that at prices higher than \$4,000/ML for high security water, the majority of irrigators would sell all their water."

Insights obtained from this study include a better understanding of how different types of irrigators behave when buying and selling water – taking into consideration their state, their [water](#) reliability, their farm type, their debt levels and other socio-economic and regional characteristics.

"From our point of view, one of the most important outcomes of this study is that we now have an accurate model. This will be a useful tool

for successive governments and regulators," Associate Professor Wheeler says.

This research is supported by the Australian Research Council and has been published online ahead of print in the *American Journal of Agricultural Economics*. It is also in the process of being applied in other countries.

Provided by University of Adelaide

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