

Are participants in markets for water rights more efficient in the use of water than non-participants? A case study for Limarí Valley (Chile)

Molinos-Senante, M., Donoso, G., & Sala-Garrido, R. (2016). Are participants in markets for water rights more efficient in the use of water than non-participants? A case study for Limari Valley (Chile). *Environmental Science and Pollution Research*, 23(11), 10665-10678. <10.1007/s11356-016-6187-2> Accessed 28 Nov 2020.

Abstract

The need to increase water productivity in agriculture has been stressed as one of the most important factors to achieve greater agricultural productivity and sustainability. The main aim of this paper is to investigate whether there are differences in water use efficiency (WUE) between farmers who participate in water markets and farmers who do not participate in them. Moreover, the use of a non-radial data envelopment analysis model allows to compute global efficiency (GE), WUE as well the efficiency in the use of other inputs such as fertilizers, pesticides, energy, and labor. In a second stage, external factors that may affect GE and WUE are explored. The empirical application focuses on a sample of farmers located in Limarí Valley (Chile) where regulated permanent water rights (WR) markets for surface water have a long tradition. Results illustrate that WR sellers are the most efficient in the use of water while non-traders are the farmers that present the lowest WUE. From a policy perspective, significant conclusions are drawn from the assessment of agricultural water productivity in the framework of water markets..

Keywords

Russell measure, DEA, Water use efficiency, Irrigation, Permanent water rights market.