Comparing changes in productivity among private water companies integrating quality of service A metafrontier approach

Abstract

Most previous studies evaluating the effect of ownership on the performance of water companies have ignored the fact that there are several types of private water companies. In this study, we instead recognize that private water companies can differ considerably in how they are managed, based on whether their infrastructure is privately or publicly owned. We estimated change in productivity of fully-privatized companies and concessionary companies by employing the metafrontier Malmquist Luenberger productivity (MMLP) index, which allowed us to integrate quality-of-service variables as undesirable outputs. We segregated the MMLP index to assess changes over time in relative efficiency, the use of best practice technology and the magnitude of the technological gap between technology in use and technology represented by the metafrontier. For a sample of Chilean water companies, the results indicate that during the years 2010–2016, productivity of fully-privatized water companies decreased by 7.5% which was mainly attributed to technical gap regression. By contrast, the productivity of concessionary water companies improved by 0.51% being the best-practice change the main driver of productivity. The methods we used and the conclusions of this study should be useful to water regulators because we show the relevance of both integrating quality-of-service attributes and classifying types of water companies before assessing changes in productivity over time..

Keywords