

Dynamic goal programming synthetic indicator an application for water companies sustainability assessment

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Abstract

This study proposes to evaluate the sustainability of water companies through time by using a new approach, one that involves a dynamic synthetic indicator derived from goal programming techniques. This dynamic indicator approach incorporates catch-up and innovation indices, which enables one to identify the main factors that drive changes in sustainability through time. We used a case study approach to clarify this dynamic approach by evaluating indicator values from a sample of 129 Portuguese water companies over the 2012 to 2015 time period. For most of the water companies we evaluated, sustainability values changed over time, which illustrates the importance of evaluating dynamic sustainability. For each examined water company, we quantified whether changes in sustainability were due to external and/or internal factors. The indicator approach we proposed should be useful for water regulators evaluating the effectiveness of policies aimed at improving a water company's sustainability..

Keywords

Dynamic sustainability, Water utilities, Composite indicator.