



# Changing times: Incentive regulation, corporate reorganisations, and productivity in the Great Britain's gas networks.

EPRG Working Paper 2214

Cambridge Working Paper in Economics CWPE2254

**Victor Ajayi and Michael G. Pollitt**

## Abstract

The gas industry in Great Britain has witnessed periodic regulatory reviews and large corporate changes over the last few decades. We undertake two separate analyses for the total factor productivity (TFP) of the gas networks using a non-parametric data envelopment analysis (DEA) approach to assess how these changes are impacting on productivity growth. First, we set out different models for the TFP analysis, each for gas transmission and distribution network, to examine how changes in incentive mechanism have influenced the measured TFP using quality of service and environmental targets. Quality standards from regulators warrant some adjustment to explore industry productivity growth. Second, we construct a combined single series for distribution and transmission using financial data to uncover how corporate reorganisations have impacted measured productivity to get a new perspective in the years before and after restructuring, when the industry went from being a single integrated transmission and distribution network to the disintegrated networks of today. We find a negative TFP growth of -1.6% p.a. for gas transmission over the sample period (2006/07-2018/19). Although, this is reversed to a positive growth once quality is included. For gas distribution, we actually find that productivity regress at -6.2% p.a. over the sample period (2006/07-2018/19), with the negative TFP trend observed across all the models, despite the inclusion of quality variables. However, we find a slightly higher TFP growth of 1% using corporate accounts over the 25 years from 1995/1996-2020/2021. The period before restructuring has a more positive productivity compared to the post-restructuring era with negative productivity growth.

**Keywords:** Total factor productivity, incentive regulation, corporate reorganisations, gas networks, data envelopment analysis.

**JEL Classification:** C23, D24, L51, L94

Contact [va301@cam.ac.uk](mailto:va301@cam.ac.uk)  
Publication July, 2022  
Financial Support The Productivity Institute, funded by the UK Economic and Social Research Council (grant number ES/V002740/1).