

Economies of Scale and Scope in Network Industries: Lessons for the UK water and sewerage sectors

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Michael G. Pollitt and Stephen J. Steer

The purpose of this paper is to investigate the scope for efficient unbundling or re-bundling of water industry assets in the UK in the light of economic theory and evidence, particularly relating to economies of scale and scope. The UK industry consists of both: water only companies that own water sources and engage in water transfer, treatment and delivery to customers; and water and sewerage companies that – in addition to the activities of water only companies - also collect, transfer, treat and manage waste water. Thus the companies which we observe in the UK industry exhibit different degrees of vertical integration. They also, in contrast to other network sectors – such as electricity and gas – vertically integrate the operation of monopoly networks with potentially competitive retailing to final consumers.

We return to the original literature concerned with scale and scope economies and shown that these concepts are challenging to separate conceptually and to reconcile with the organisation of actual firms. Specifically, we find that the real difference in efficiency between integrated or non-integrated firms lies in the costs associated with realising the economies of scale and scope that the underlying assets have to offer rather than in the assets collected under the ownership of the firms. Changing the ownership structure of firms does not prevent underlying assets from being efficiently utilised, however, it does affect the governance costs associated with their utilisation. Therefore from the perspective of the economic theory the potential efficiency savings for unbundling (or re-bundling) within the water industry to return efficiency savings hinges on the extent to which competition or more effective regulation is facilitated by unbundling (or re-bundling), as well as the transaction costs imposed by the initial industry structure.

An ideal unbundling would therefore stimulate competition, improve the cost effectiveness of regulation, reduce the governance costs associated with optimal management of the existing assets and stimulate a development path (reflecting the ownership patterns) which was more dynamically efficient. Evaluating a proposed unbundling becomes difficult when it imposes potentially significant upfront reorganisation costs and is expected to improve some of the ideal elements but worsen others.

We examine the findings of recent reviews of econometric literature on costs and have looked in detail at studies focussed on the England and Wales water and sewerage industry, which have been performed in light of the on-going policy debate. The econometric literature is characterised by the diversity of its findings on both scale and scope. This has provided evidence that industry costs are significantly influenced by regional geography and demographics and history. Such analysis can only really evaluate the relative performance of existing industry structures and is not particularly informative in judging hypothetical reorganisations of assets not reflected within the actual sample analysed. The data for England and Wales contains no actual examples of separated retail and network businesses or of separated bulk water collection and distribution and can therefore offer no conclusions on the likely impact of such separation.

We identify where other, more informative, sources of evidence might be found. We have looked at other sectors and at examples of water industry reform around the world. All of these suggest that claims of large increases in costs, based on cost function analysis of existing water industry data, due to reorganisations of water industry assets are not supported in analogous industries or in other jurisdictions. We emphasise that the structure of a water and sewerage industry should: be consistent with underlying economic theory; be informed by relevant econometric studies; and be consistent with the evidence available from actual reform in the water industry and other closely related sectors.

Contact m.pollitt@jbs.cam.ac.uk
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