

Four essays on efficiency in Swedish electricity distribution

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ABSTRACT

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The purpose of this thesis is to increase efficiency in the regulation of the Swedish electricity distribution sector. The sector was reregulated in 1996, but there is still a lively debate on the design of future regulatory arrangements. Ensuring efficiency in the utility industries is a challenging task. Research and practical experience have shown that there is no optimal economic solution, either specific or general, and there is not likely to be any quick or simple fixes that will lead to a robust increase in welfare. Nevertheless, the better the regulator can answer questions like: '*What do they want?*', '*What do they do?*', '*What do they get?*', the more efficient the regulation becomes.

In the process of regulating natural monopolies the regulator must handle complex and uncertain decisions. Complexity arises from the need to consider multiple and often contradictory objectives, and uncertainty is the result of incomplete and asymmetrically distributed information. Much of the academic research has focused on how the influence from these could be reduced. This thesis focuses on which factors influence the regulatory decision process (Papers 1 and 2) and the relation between ownership and efficiency/welfare (Papers 3 and 4).

Paper 1 applies a stated preference methodology in order to determine how customer power influences distribution conditions. It is found that utilities seem to be well informed about large customer preferences which is interpreted as powerful customers being better able to influence utility conditions. Paper 2 uses information on every civil case handled by the regulator from 1981 to 2004 (and by the court from 1996 to 2002). It reveals that power is an important determinant of regulator and court decision making. Hence, the results from the first two papers suggest that powerful and aggressive actors are favoured in every step of the regulatory process. This raises the important question of how the voice of small customers can be strengthened. Conventional economic analyses can be one solution, but the formation of customer interest/defence organisations can be an interesting complement.

The investigations of the relationship between ownership and efficiency in Paper 3 and 4 generate mixed outcomes. The difficulty of finding a consistent and significant relationship between ownership and efficiency might be due to the variation in regulatory structure. The introduction of the incentive-based regulation in 2003 does not seem to have affected the magnitude of, or distribution of, welfare. Thus, regulatory arrangement rather ownership should be considered as a means to increase welfare.

Keywords: Regulation, electricity distribution, Sweden, econometrics, efficiency, uncertainty, ownership

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