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**ECONOMIES OF SCALE AND SCOPE IN THE SWISS MULTI-
UTILITIES SECTOR**

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Overview

This paper analyzes the cost structure of the Swiss electricity sector in order to assess the economies of vertical integration and their relationship with scale economies and size. The electricity sector is characterized by different production stages which are often viewed as a rationale for vertically integrated utilities. The economies of vertical integration between generation and distribution mainly result from the integrated organization's ability in avoiding transaction costs that would otherwise exist between independent firms. Moreover, vertically integrated companies might be able to reduce part of their fixed costs that is shared between generation and distribution. On the other hand, unbundling the services into separate functions allows a greater efficiency through deregulation and stronger competition especially in the generation sector. The latter benefits have been highlighted in the ongoing reforms in several European countries in which vertically integrated companies are asked to introduce an unbundling process in order to boost competition. The analysis of economies of vertical integration and its assessment across different companies can have important policy implications for the actual regulatory reforms.

Several studies provide empirical evidence for significant economies of vertical integration in the electricity sector (Fraquelli, Piacenza et al. (2005), Jara-Diaz, Martinez-Budria et al. (2004), Kaserman und Mayo (1991), Kwoka (2002)). In general these studies also indicate that larger utilities have a greater potential for economies of vertical integration, which suggests a negative correlation between scale economies and vertical economies. However, few papers have explored the extent and reasons for such inter-relationship.

The vertical economies are mainly driven by transaction costs whereas the scale economies are resulted from savings on fixed costs. This paper argues that the estimated vertical economies and their relationship with scale economies depend upon the model specification and particularly on the specification of various fixed costs.

Methods

In order to estimate these economies, a multi-output cost function has been estimated using a panel data set composed of a sample of companies operating in the production and/or distribution of electricity. The data set contains financial and technical information from 96 Swiss electricity companies observed during the nine-year period between 1997 and 2005. In the specification of the multi-output cost function we have considered several approaches. Especially, some of the included models differ with respect to the included fixed costs. From the econometric point of view we considered a GLS model in which the unobserved firm-specific heterogeneity is accounted for by random effects.

Results and Conclusion

The preliminary results point to significant economies of vertical integration. Furthermore the results provide evidence of overall economies of scale. The estimated product-specific scale economies indicate that such economies are greater in the distribution sector as compared to power generation. In general these results provide some evidence in favor of integrated electricity companies. However, the results also suggest that the extent of vertical economies is sensitive to the adopted specification especially regarding the various fixed costs included in the models. The paper concludes that a better assessment of vertical economies requires a reasonable distinction between the fixed costs that can be reduced through extension from those that are affected by vertical integration.

References

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