

Novel Perspectives on Technology-Based Efficiency and Productivity Analyses.

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Abstract

This dissertation contributes to the efficiency and productivity literature by adopting a managerial focus to address gaps in previous research. In doing so, it uses existing methodological tools, further developed and adapted to current needs. These proposals are applied to the Spanish banking sector, an industry that attracted vast amounts of interest due to its post-deregulation growth phase. Against the background of the recent financial crisis, this attractiveness for research of (Spanish) banks will probably escalate, as new consolidation policies from central institutions will induce novel competitive strategies.

Three topics represent the core chapters of this thesis: (1) The identification and analysis of bank performance groups through decomposed productivity and efficiency indicators; (2) New proposals of total factor productivity (TFP) benchmarking via technology-based index numbers; (3) The assessment of potential gains from mergers and acquisitions (M&As) through convex and non-convex efficiency frontiers.

In the framework of the strategic groups' literature, the first chapter analyses changes in the productivity and efficiency of Spanish private and savings banks between 1998 and 2006. By adapting a decomposition of the Malmquist productivity indices, it proposes similar components decomposing the Luenberger productivity indicator. TFP is disentangled into technological and efficiency changes. The latter is then decomposed into pure efficiency, scale and congestion changes. Empirical results show that productivity improvements are partially due to technological innovation and explain how the competition between private and savings banks develops. Consequently, the Luenberger components are used as cluster analysis inputs. Thus, economic interpretations of the resulting performance groups are made via key differences in TFP components. To end with, as suggested by the strategic groups' literature, insights are gained by linking these performance groups with banking ratios.

Second, by proposing a benchmarking framework to analyze TFP, a gap is filled between the benchmarking literature and multi-output efficiency and productivity studies. Different specifications of the Hicks-Moorsteen TFP index are tailored for specific benchmarking perspectives: (1) static, (2) fixed base and unit, and (3) dynamic TFP change. These approaches assume fixed units and/or base technologies as benchmarks. In contrast to most productivity indices, the standard Hicks-Moorsteen index always leads to feasible results and TFP interpretations. Through the defined specifications, managers can assess different facets of the firm's strategic choices in comparison with relevant benchmarks and thus have a broad background for decision making. An analysis for the Spanish banking industry between 1998 and 2006 illustrates the feasibility and managerial implications of the proposed framework. The third chapter scrutinizes the potential efficiency gains from M&As, a widely researched topic, but often linked to inconclusive results. We speculate that this is partly caused by the employed methodological assumptions. Among them, the assumption of a convex technology can be an important influence on the results. Thus, both convex and non-convex technologies are used to reveal post-M&As cost excess gains due to scale and technical inefficiencies. Ex ante conditions for achieving potential cost reductions are devised and then tested ex post on a sample of 32 Spanish banking M&As that occurred between 1988 and 2006. Empirical results show that significant cost excess reductions appear two years after the merger event.

Furthermore, it is illustrated that the non-convex estimations are closer to the movements in

the observed costs. These are interesting findings in view of the upcoming merger wave and should be complemented with research on scope efficiency and economies of diversification.