

How to Set Rates if You Must: An Efficiency-based Methodology for Setting Promulgated Insurance Rates

Jing Ai, Patrick L. Brockett, Linda L. Golden, Utai Pitaktong

Dept. Financial Economics, University of Hawaii at Manoa, Honolulu,
Dept. Information, Risk, and Operations Management, University of Texas at Austin,
Dept. Marketing, University of Texas at Austin,
State Farm Insurance Company, Bloomington, IL.

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Extended Abstract

A primary directive of insurance regulation as it relates to rate setting is that rates not be inadequate, excessive, or unfairly discriminatory. In many regulatory environments and in the United States in most states this directive has been incorporated into law and, together with market conduct monitoring, sets the regulators' role in the marketplace. In theory, forces of market competition under complete information should provide a form of self-policing to facilitating the achievement of the actuarial principles in the marketplace. However, with inexperienced insurers and/or consumers who have inadequate knowledge of insurance pricing and coverage, prices may arise that are either too high or too low when compared to economically efficient prices. When there is such a lack of efficient competition, or due to other economic externalities inhibiting efficiency, regulators often step forward and promulgate the insurance rate to protect the consumer and/or the insurer.

This promulgation of rates occurs most frequently in new insurance markets, markets having little competition, and in lines of business most affecting citizen consumers (as opposed to commercial insurance). Of course, when the government itself is the insurer (as in non-commercial flood insurance), rates are also promulgated. The history of rate regulation in the United States presents a similar evolution. Originally most states set rates using rating bureaus or department of insurance personnel, and only gradually did rate deregulation occur. For lines of insurance such as title insurance in Texas, credit life and disability insurance, and several other lines of insurance, state set rates still exist even though the market is well developed and the participants sophisticated.

The most important components in promulgated rate setting are expected losses and the expenses. The expected losses can be modeled by the regulator using actuarial loss models. In a competitive economic environment with knowledgeable participants, market efficiency will force the insurers to control their expenses to achieve profitability. In a promulgated rate environment, however, the regulator must set rates so as to reward efficiency in expense handling while not rewarding inefficiency in expense handling, all while setting a single overall rate. This paper provides a method (Data Envelopment Analysis or DEA) for determining an efficient level of expenses that can be used in rate promulgation that emulates market efficiency. We shall illustrate this using promulgation of title insurance rates in Texas, however the general set up can be applied to any country or insurance line where rates must be set by the regulator.

We use title insurance data available from the Texas Department of Insurance. We examined a large volume of ratemaking materials presented in the recent public hearings and follow the current ratemaking methodology closely except for the determination of the expense components. This will allow us to compare and assess the merits of the proposed methodology. We run two different sets of DEA analysis (the classic BCC model and an invariant Additive model) with a carefully chosen set of efficiency definitions to identify the efficient title insurance agents. We then use regression analysis and calibrate title insurance premium using expenses incurred by only the efficient agents, rather than the entire set of agents as is currently done. We also address other regulatory concerns (such as the impact of agent size and type on expense efficiencies) discussed in the ratemaking hearings.

Keywords: Insurance ratemaking, Efficiency analysis, Data Environment Analysis (DEA), Title insurance

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