

## AUTHOR'S REVIEW OF DISCUSSIONS

The author is gratified and encouraged by the comments on his paper. The critical analyses re-emphasize the importance of the subject even though it is apparent that I have made a limited contribution.

As a generalization, the four reviewers point out the need for, and urge, further work beyond the scope of my work to make it more useful and meaningful, particularly in ratemaking, forecasting of losses, and for loss reserve purposes.

It has become apparent to me now — after reading these four written reviews plus about a dozen comments made to me in person or by letter from interested readers outside our Society — that there is a need for other indexes or similar numerical measurements of external economic conditions affecting liability and property insurance loss costs. I look upon my endeavor as accomplishing only two things: (1) an historical recording of external economic indexes and data and (2) the invention of a "business index." I would have to agree with Mr. McClure and with Mr. O'Leary that an index to serve in direct support of present trend factors in rate-making would need to be more precise and technical in nature — with agreement in concert as to external indexes used, weights, testing against actual experience, recognition of state and area differences, as well as the methods of preparation. As Mr. O'Leary says: "If an index is to be used in a forecast of losses, it is going to be necessary to forecast future values of the index."

These four reviews are recommended as important additional reading on the subject because, in addition to being commentaries on my paper, they furnish much new material beyond the scope of my research.

While it would be most desirable for the LPI indexes calculated by the author to have been tested against actual loss experience, there is not available any loss experience data generated solely by economic factors. Average claims cost data available embrace more than just economic factors. As stated in my paper: "This LPI Index does not measure every cause or reason for changes in our claims costs. It is intended to measure trends in those economic factors which operate during the claims settlement procedure." Available claims cost data reflect other factors such as changes in deductibles, changes in acceptance or rejection of small border-line claim notices, medical payments, and low liability limits during inflationary peri-

ods, and the lack of uniformity in recording small and no-payment claims notices. Also, in a study by the author of medical care and car repair costs, he observed a sharper rise during inflation years when these costs are insurance claims than when they are not insurance "accidents." Influences other than "economic" are affecting average claims costs. Greater efficiency in claims handling and tighter settlements could offset some increase in economic factors.

Mr. O'Leary points out an inconsistency in my comments on "supply and demand" in the market-place. A more accurate statement should have been made: "Our *insurance prices* are not determined by supply and demand in dealing with suppliers in a commercial-type market-place."

Three reviewers question the weighting method employed to measure the factor of "pain and suffering." The rough rule that pain and suffering be appraised at 2 to 3 times specials, when subjected to my index arithmetic, gives an unrealistic weighting. Since the same questionable method was used in the 1957-59 base years the final index would not be changed too much by a more feasible weighting system. The author will clarify this in future index calculation and revision.

"What is it Mr. Masterson has done?" or "How do we use his indexes?" My answers to these questions posed by Mr. O'Leary are in these comments: These are business indexes and should be used in the same way we use other national business indexes or economic measurements such as the Consumer or Wholesale Price Indexes, the several stock market indexes and averages, Gross National Product and other national growth figures.

There are several reasons for relating our insurance costs to external economic factors. Inflation has a direct impact on our financial results; we are a service business in the United States, which is now the first nation in history in which more than half of the employed population is not involved in the production of food, clothing, houses, automobiles, or other tangible goods. Our premium prices reflect the spiraling increases in the skilled professions of medicine and law as well as in other executive and skilled white collar employment.

At the recent meetings of our Society our guest speakers have stressed directly the importance of the study of economic factors to supplement our internal data. At the luncheon address at our 1967 annual meeting Travelers President Sterling T. Tooker observed that the casualty-property actuary "*reacts*, often ignoring the *trends* being indicated by historical evi-

dence, and ignoring, equally, what is going on around him *right now*" (PCAS, LIV, p. 230). At the 1968 spring meeting New York Insurance Commissioner Richard E. Stewart referred to general inflation, degree of future inflation, inside and outside factors, and changing external factors. At the same meeting Dr. Irving H. Plotkin on the panel discussion of "Investment Income in Insurance Rates" stated: "Even the Supreme Court can't long ignore economic factors."

Where do I go from here? I plan to continue research on the index constructions in the direction of making more use of government data published monthly and quarterly in lieu of my present use of certain data which, while official, is now available on an annual basis only. I should like to be able to come up with comparable interim indexes — at least quarterly.

Mr. Smith suggests that "The industry would be best served if the NAIC would establish a subcommittee to oversee the development of such indexes, and the dissemination of the results to the public." The NAIC staff has already made some use of the author's paper and indexes. The establishment of an economics staff member in the NAIC office would make him a desirable control person for the development of data, updating of indexes, and the dissemination of the results at frequent intervals to the state regulatory authorities and the public.

Any member interested in research to develop a technical index or other measurement of economic data for direct use in ratemaking will have available in this paper a launching pad for expanding the scope of the subject of economics in our business.