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Product Development Section Research

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As you likely know, the Product Development Section uses its section membership dues to finance its work, such as publishing the *Product Matters!* newsletter and conducting research projects. Those membership dues are then leveraged by use of volunteers whenever possible. As I write this article, I'm impressed by how much research is being conducted by our section and what a fantastic return is being provided each year by the investment of our $25 annual dues per member.

This column highlights research that the Product Development Section either has recently completed or is currently conducting. Some research projects are cosponsored by more than one SOA section, both to help spread the cost of the project and to ensure that the results are applicable to actuaries practicing in difference functions (such as pricing and valuation). Other research is conducted solely by the Product Development Section in conjunction with our research partners at the Society of Actuaries (SOA).

If a particular topic profiled here piques your interest, you can go to the SOA website to find more information. The final deliverable on each project is available on the website once the research has been completed. Those deliverables typically include a report regarding the scope of the project and the results. Some projects also include additional information, such as spreadsheets containing the results or tools that actuaries can use to apply the results to their business.

RECENTLY COMPLETED RESEARCH

The Product Development Section has completed three large-scale research projects over the past several months. All are available on the Product Development Section research page of the SOA website:

- **Practical Analysis of PBR Mortality Credibility for Term Insurance.** This research examines the impact of VM-20 mortality credibility requirements on life insurers and of the potential solutions for increasing credibility levels.

- **Mortality Analysis of the 1898–1902 Birth Cohort.** The 1898–1902 birth cohort for the U.S. presents a unique opportunity to analyze the mortality of this cohort at advanced ages with a high level of confidence in the results. Advanced ages can be easily verified, as this cohort was too young to qualify for Medicare when it was first introduced, so proof of age was required when they qualified in the following year. Deaths from this cohort and subsequent cohorts at ages 65 and up should be available in governmental records, such as the Social Security Administration Death Master File.

- **Survey of Waiver of Premium/Monthly Deduction Rider Assumptions and Experience.** This report contains the results of a survey that was conducted to better understand practices regarding disability waiver of premium benefits offered on individual life products in the United States.

RESEARCH CURRENTLY UNDERWAY

Many more research projects are at varying stages of completion:

- **Canadian Predictive Analytics.** This is a survey of predictive analytics techniques being used by actuaries in Canada. The project is nearing completion, and we anticipate that the report will be posted soon to the SOA website.

- **Modeling and Forecasting Cause of Death.** This project entails evaluating data regarding mortality cause of death in the United States. The deliverable will be a research report discussing the approach and results. A second deliverable will be a tool (likely Excel) that allows users to make their own assumptions regarding the future prevalence of certain causes of death to see how that impacts mortality rates in the future. We anticipate the research will be completed and the results posted to the SOA website before the end of this year.

- **Credibility Theory in Canadian Life Insurance Industry.** This research project began as a survey of credibility approaches being used by life insurance actuaries in Canada. The research was then expanded to demonstrate the impact on results if a different approach to defining credibility was taken. The project is nearing completion, and we anticipate that the report will be posted soon to the SOA website.

- **Validation of Predictive Models for Insurance Applications.** This research is intended to be a resource for actuaries and other practitioners to address the challenges

insurers face with validating predictive models. This project is nearing completion and should be posted soon to the SOA website.

- **Life Insurance Accelerated Underwriting Survey.** This survey examines life insurance accelerated underwriting programs and practices. The survey results are currently being consolidated and analyzed.

- **A Machine Learning Approach to Incorporating Industry Mortality Table Features in Mortality Analysis.** This research will assist in the development of a method of using a machine learning approach for inputting industry mortality table features in creating predictive models.

- **Simplified Underwriting Survey.** This survey of companies is gathering data regarding simplified-issue underwriting practices on individual life products.

- **InsureTech.** This project intends to provide actuaries and insurance professionals with an introductory guide regarding history, current landscape and potential for the future. This research has just been initiated. ■

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