Insights from Quote Activity Data on US Income Annuities
Fields Industrial Problem Solving Workshop 2019

Problem Description
CANNEX has five years of SPIA/DIA quote activity on its platform. The quote activity includes client demographic information, the request parameters for the actual SPIA/DIA quotes, the quotes from various insurance companies (if they meet the request criteria) and whether the quote was chosen for product purchase.

We would like to analyze the data set to discern interesting characteristics and patterns. Besides determining the profile of an annuity purchaser, some of the questions that we are interested in are:

- What features of an annuity (guarantee periods, refund options, inflation, credit ratings) are important for client?
- Are the features equally important to men and women?
- Does geography (i.e. state residency) determine the type of annuity purchased?
- When individuals submit multiple requests choosing various different annuity features, is there a discernable pattern? Do these individuals settle for the highest income or guarantee period?
- Are we able to predict (with some degree of certainty) the winning annuity for a particular client?
- Are there any external factors (interest rates, equity markets) that might correlate with higher/lower quote activity?

In 2016, Charupat, Kamstra, and Milevsky (https://ssrn.com/abstract=2820368) analyzed the weekly annuity quote data (from September 2004 to May 2012) to test how promptly annuity prices adjust to prevailing interest rates. They observed that prices did not adjust immediately but rather gradually over a period of several weeks and that the adjustment was asymmetric – annuity prices react rapidly to an increase in interest rate than to a decrease in interest rates. Looking through the current data set, do their findings still hold true? How fast do carriers react to changes in interest rates? Who are the leaders vs. laggards in reacting to interest rate changes? Does the interest from clients go up (volume of requests) when interest rates change?

CANNEX Financial Exchanges Limited
CANNEX is an independent and privately held company with operations in Canada and the U.S. We facilitate the efficient and accurate exchange of pricing and analytics for annuity and bank products between financial institutions. Our independent exchange of this information is deployed to support a variety of processes for distributors, financial product manufactures, and service providers.

Amongst its many services, CANNEX manages the actual pricing algorithms for Single Premium Income Annuity (SPIA) and Deferred Income Annuity (DIA). Real time pricing data allow financial institutions to manage their own product valuation and retirement planning processes.