

Project: Pricing from Experience: Predictive Analytics for Dynamic Pricing in Non-life Insurance

Description: This project represents the PhD thesis of Robert Matthijs Verschuren and is based on three academic papers. Each of these papers makes use of a different proprietary insurance dataset and contains information on the behavior and characteristics of individual policyholders. A detailed description of each dataset is given below.

The second chapter and first paper of this PhD thesis analyzes a property and casualty insurance portfolio supplied by VIVAT containing 183,690 policies on general liability, 264,348 on home contents, 111,018 on home, and 363,573 on travel insurance. This portfolio includes a variety of risk characteristics for each customer from 2012 up to and including 2018 and a customer's past claims experience from 2005 up to and including 2018. A detailed list of all the risk characteristics used for each insurance product line is given in the appendix of chapter 2.

The third chapter and second paper of this PhD thesis considers an automobile insurance portfolio supplied by Nationale-Nederlanden consisting of 193,744 Motor Third Party Liability insurance policies from 2011 up to and including 2019. This portfolio contains various customer- and vehicle-specific risk characteristics, as reported in the appendix of chapter 3.

The fourth chapter and third paper of this PhD thesis studies an automobile insurance portfolio supplied by VIVAT containing 82,589 policy renewals from 2017 up to and including 2019. This portfolio includes information on the type of policy that is insured, the riskiness of individual customers, and the competitiveness of VIVAT's renewal offers with respect to competitors, as detailed in the appendix of chapter 4.

Each of these three proprietary datasets contains a wealth of information on the level of individual policyholders. Based on this information it is therefore possible to identify or recognize individual persons. Moreover, these datasets contain highly sensitive information about the insurance companies and their business models. As such, it is strictly forbidden by VIVAT and Nationale-Nederlanden to share these datasets and these datasets have therefore been analyzed on a company laptop that was provided by the insurer.