

IFoA WP – Machine Learning in Non-Life Reserving

Survey 2023 – Italy

Executive Summary

- In 2023 (and 2020) Rocco Roberto Cerchiara conducted surveys on the use of ML in reserving in Italy.
- Quota share of Non Life Italian Market:
 - 81% of total premiums
 - 17% of total number of companies
- The survey found that there was enthusiasm for developing techniques for machine learning in reserving. Whilst there has been a large interest in the actuarial offices, management is more cautious
- The main findings were:
 - Companies are at very different stages in their research, but overall we are still at an early stage
 - The main barriers companies were finding were:
 - Data Quality
 - Lack of best practice
 - Time and resource constraints, and skills
- There was less appetite within companies with Standard Formula and/or small/medium companies
- Insurance companies reported that they were at an early knowledge-gathering stage regarding the use of ML algorithms, adopted mainly for the optimization of internal processes and, only in limited cases, in the relations with policyholders (see the appendix)

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Main findings

- More enthusiasm from reserving actuaries but stakeholder engagement low (as compared to 2020 survey)
- Only a very small number of companies (around 13%) have actually applied machine learning and/or ICR methods to reserving so far
- 27% of the respondents are applying stochastic methods in claim reserving
- Some companies are not using ML in any area of the business (20%). Other companies are using ML in Pricing and/or Marketing and/or Claims Management
- 31% of the companies are planning to introduce, or develop further ML techniques for reserving
- One of the key differentials seems to be stakeholder engagement: with a key barrier for reserving teams being
 - Data Quality (50%)
 - Time and resource limitations (15%)
 - No support from management/headquarter (10%)
 - Lack of best practice (10%)
 - Developing the necessary knowledge is not something that can be learned in an afternoon (15%)

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Main findings

- The respondents proposed some ideas on how to help developing the knowledge or use of ML in reserving:
 - More courses on ML and Reserving / Better understanding of ML technique / Case studies
 - Generative AI
 - How to integrate ML models into reserving processes
 - Supervisor view and selection of ML techniques admitted for reserving
 - More survey
- Organization's attitude to using open source software such as R or Python:
 - High → 27%
 - Medium → 53%
 - Low → 20%

Appendix

Survey on the use of Machine Learning algorithms by insurance companies in their relations with policyholders

IVASS (Italian Insurance Supervisor) 2023

Executive Summary

- Insurance companies report that they are at an early knowledge-gathering stage regarding the use of ML algorithms, adopted mainly for the optimization of internal processes and, only in limited cases, in the relations with policyholders.
- 27% of companies use at least one ML algorithm in processes with direct impact on customers, for a market share of
 - 78% in non-life and
 - 22% in life business.
- The main areas of use of ML algorithms, mainly in motor liability, relate to
 - fraud prevention and
 - claims management,and to the identification of customer intention to churn (churn patterns), including for pricing purposes at policy renewal.
- As regards the governance of new ML tools - crucial for their informed and responsible use –
 - only one company indicates that it has defined a specific policy;
 - other 19 companies are defining it;
 - 5 state that they have not yet addressed this issue.
- It should be noted, however, that 56% of undertakings using ML algorithms say they have internal mechanisms in place to assess fairness to policyholders and detect unwanted exclusions or discrimination of customers.