Actuaries in General Insurance: The History and the Future

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Introduction

Structure of presentation

• Summary of our work so far
• History - selected highlights
• Future - selected highlights

What do you want to get out of this?
Summary of our work so far

1. Analysis of IFoA membership statistics 2009 - present
2. Analysis of data from recruiters
3. Interviews with members of the profession
4. A literature review (informal)

Potential to extend in future:

- Statistics on GIRO attendance
- More data on the jobs market for GI actuaries
- Further interviews
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History - Demographic change

Fellow population pyramid 2009

Student population pyramid 2009

Source: IFoA membership statistics 2009-2017
History - Demographic change

Fellow population pyramid 2013

Student population pyramid 2013

Source: IFoA membership statistics 2009-2017
History - Demographic change

Fellow population pyramid 2017

Student population pyramid 2017

Source: IFoA membership statistics 2009-2017
History - Demographic change

Fellow : student ratio

Source: IFoA membership statistics 2009-2017
History - Consolidation

Employment by size of insurance company

Source: IFoA membership statistics 2009-2017
History - Where actuaries work

Source: IFoA membership statistics 2009-2017
History - Role of Regulation

Regulation has been the main driver of growth in actuarial positions in the UK.

- Requirement to produce triangles (1980s, Reserving)
- Regulation at Lloyd’s (1990s, 2000s; Reserving, Capital)
- Solvency II (2010s; Capital, Risk)

Exception: Pricing?

Source: Interviews
History - Pricing

Technology and the competitive market have driven the growth of actuaries in Pricing. Main drivers:

- Direct distribution of insurance in the 90s and 00s
- Internet sales, price comparison in the 00s and 10s
- More recently, data intensive pricing / price optimisation

Possible takeaway:

It is technology coupled with market dynamics that allows actuaries to grow into a new area of work. Implications for wider fields?

Source: Interviews
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Future - Demographic change

Total population pyramid 2017

Source: IFoA membership statistics 2009-2017
Future - Demographic change

Projection – assume M/F 2:1, used growth trend in student numbers joining
Future - Demographic change

Projection – assume M/F 2:1, used growth trend in student numbers joining
Future - Demographic change

Total population pyramid 2025

Projection – assume M/F 2:1, student numbers joining held constant at average levels 2015-2017
Future - Implications of demographic change

There are more and more of us!

**Implication 1 – Increasing competition and pressure on salaries**
The profession is responding by introducing the “Chartered Actuary” designation.

**Implication 2 – Specialisation will increase**
Actuaries are increasingly working for large insurers where roles are naturally more specialised.
Future - Divergence of consulting and industry

Employment of fellows by age group and employer in selected years

Source: IFoA membership statistics 2009-2017
Future - Divergence of consulting and industry

Employment of students by age group and employer in selected years

Source: IFoA membership statistics 2009-2017
Future - Divergence of consulting and industry

Fellow : student ratio

- **Industry**
- **Consultancy**
- **Life insurance**
Future - Implications of divergence

- Will regulation evolve? Currently it can feel as if regulation is written with the consultant in mind, not the actuary working in industry.

- In future, majority of actuaries will train and qualify while working for an insurance company - implications?
  - On commercial awareness?
  - On breadth of knowledge?
Future - Increase in diversity

Diversity is on the increase in every way:

• Gender
• Ethnicity and nationality
• Age – at all levels

Potential implications:

• Broader range of experiences, working styles and ideas across teams
• Cohort effect with diversity - older and younger generations with a different experiences and expectations of the profession
• New leaders emerging from the younger generation
Future - Maintaining diversity

% Women by cohort and status in 2017

- Fellows
- Students

50-59: 17%, 18%
40-49: 22%, 28%
30-39: 31%, 36%
20-29: 40%, 32%
Future - Promoting diversity

The industry can do more to encourage a more diverse workforce:

- Outreach at schools and universities
- Networks and coaching
- Flexible working – actuaries do not need to work in the office
- Job-sharing
Future - Growth Areas

Interview responses:
- Pricing (especially Lloyd’s)
- IFRS17
- Risk
- Investment (?)

Recent Recruiter Placements:
Future - Actuaries in insurance

Mixed teams of actuaries and non-actuaries

Actuaries in senior roles:

- CFO
- CEO
- Board member
- Chief Data Officer?
Future - Actuaries in wider fields

The actuarial skillset is highly transferrable:

- Analysing risk
- Drawing insights from data
- Communicating with impact

Wider fields include:

- Banking – a mainstream career option?
- Asset management
- Corporates
- Data science
Future – Impact of Technology

• Most impact over next 5 - 10yrs:
  1. Artificial Intelligence
  2. Machine Learning
  3. Robots

• Others mentioned include: Data mining / enrichment tools, Natural Language Generation, Internet of Things, Moving on from Excel, Cloud
Future – Artificial Intelligence

**Artificial Intelligence**
- Ability to sense, reason, engage and learn
  - Robotics and automation, Voice recognition, Natural Language Processing

**Machine Learning**
- Ability to learn
  - Supervised learning, Unsupervised learning, Reinforcement learning

**Methods**
- Ability to reason
  - Regression, Decision Trees

**Technology**
- Physical enablement
  - Platform, Sensors, APIs, UX
Future – Machine Learning

Learning Models: Supervised, Unsupervised and Reinforcement

Pre-trained Models: E.g. Natural Language Generation from Narrative Science
### Future – Robotic Process Automation

<table>
<thead>
<tr>
<th>Robots are</th>
<th>Robots are not</th>
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<tbody>
<tr>
<td>Computer coded software.</td>
<td>Walking, talking auto-bots.</td>
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<tr>
<td>Programmes that replace humans performing repetitive rules-based tasks.</td>
<td>Physically existing machines processing paper.</td>
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<tr>
<td>Cross-functional and cross-application macros.</td>
<td>Artificial intelligence or voice recognition and reply software.</td>
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Future – Technology – Opportunities & Challenges

• Opportunities:
  • Less manual work, more efficient
  • More insight
  • Collaborate with different disciplines

• Challenges:
  • Data quality
  • Training for junior team members
  • Regulation
Future – How can you prepare

• Build your toolkit:
  • Commercial awareness
  • Breadth vs. depth of expertise
  • Materiality to the Board
  • Project management skills

• Empower your team:
  • Understand motivations of your team
  • Consider wider role rotations within your organisation
  • Setting the right mind-set for a changing industry
Summary

• History
  • Demographics
  • Consolidation
  • Role of regulation

• Future
  • Diversity
  • Impact of technology
  • How can you prepare
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