ACTUARIAL FIELDS/CAREER PATH WORKSHOP

MS 6627
October 30th, 2023,
Presented by Tian Ouyang
AGENDA

01 Overview
02 Insurance
03 Consulting
04 Insurance vs. Consulting
05 Nontraditional Actuarial Roles
01. Overview
OVERVIEW

• What is an actuary?
  • An actuary is a business professional who uses mathematical and statistical techniques to put price tags on risks
  • Actuaries calculate the costs of uncertain future events that range from various natural disasters, such as tornados and hurricanes, to changes in life expectancy
### WHERE DO ACTUARIES WORK?

<table>
<thead>
<tr>
<th>Industry</th>
<th>Associates</th>
<th>Fellows</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>242</td>
<td>271</td>
<td>513</td>
</tr>
<tr>
<td>Bank</td>
<td>208</td>
<td>322</td>
<td>530</td>
</tr>
<tr>
<td>Consulting</td>
<td>2,509</td>
<td>4,892</td>
<td>7,401</td>
</tr>
<tr>
<td>Health</td>
<td>1,132</td>
<td>1,972</td>
<td>3,104</td>
</tr>
<tr>
<td>Insurance</td>
<td>2,345</td>
<td>6,539</td>
<td>8,884</td>
</tr>
<tr>
<td>Regulator/Government</td>
<td>271</td>
<td>296</td>
<td>567</td>
</tr>
<tr>
<td>Retired</td>
<td>218</td>
<td>899</td>
<td>1,117</td>
</tr>
<tr>
<td>Technology</td>
<td>90</td>
<td>135</td>
<td>225</td>
</tr>
<tr>
<td>Other</td>
<td>432</td>
<td>586</td>
<td>1,018</td>
</tr>
<tr>
<td>Not Listed</td>
<td>4,916</td>
<td>2,960</td>
<td>7,876</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12,363</strong></td>
<td><strong>18,872</strong></td>
<td><strong>31,235</strong></td>
</tr>
</tbody>
</table>

Source: SOA as of 12/2020
WHERE DO ACTUARIES WORK

MAJOR LINES OF BUSINESS
• HEALTH AND BENEFITS
• PROPERTY AND CASUALTY
• RETIREMENT
• LIFE
• REINSURANCE

OTHER ROLES:
• DATA MINING
• CATASTROPHE MODELING
• INVESTMENT MANAGEMENT
• SOFTWARE
• QUANTITATIVE ANALYTICS
WHY BECOME AN ACTUARY

- Low stress
- High compensation
- Low unemployment rate
- High job security
  - AI helps actuaries do our job
  - Risk management is even more important during economic recessions
- Balanced lifestyle
- No more student debt
- Impactful work
  - You see your solution in the real world!
- Salary increases with passed exams and experience
FCAS Salary Survey 2023

Source:
Health FSA Salary Survey 2023

Source:
ACTUARIAL ORGANIZATIONS

- There are two main actuarial organizations that govern different practices
  - Within each practice, actuaries can be divided into Insurance or consulting
02. Insurance
PROPERTY AND CASUALTY

• Help protect individuals and businesses against losses from automobile accidents, property damage, theft, and commercial liability

• Use new technologies and developments, predictive analytics, and modeling to quantify and manage emerging risk such as self driving cars, climate change, and ridesharing
PROPERTY AND CASUALTY

Property and Casualty

- Home Insurance
- Personal & Commercial Auto
- Disaster Insurance
- Workers’ Compensation
- Medical Malpractice
P&C ACTUARIES MIGHT ANSWER...

Pricing
Ex: How much more does AAA have to charge drivers who have a DUI conviction? How much of a discount can we give drivers whose cars have more airbags?

Reserving
Ex: How much cash does Farmers have to keep on-hand to pay claims? How much can it use to invest for profit?
P&C Companies

Liberty Mutual

GEICO

AAA

Farmers

Allstate
HELPING HEALTH

• Help draft rates/premiums to cover cost of care for individuals and work with hospitals, medical device manufacturers, doctors, and pharmacists to make the whole health system work more efficiently
HEALTH

Health Insurance

Medical

Vision

Dental
P&C ACTUARIES MIGHT ANSWER...

Pricing & Reserving
Ex: How much more do we need to charge smokers to cover their higher risk? By how much can we lower premiums if we invest the premiums we collect?

Healthcare Policy
Ex: What happened to premiums when the Affordable Care Act required all people to buy health insurance? What happens now that the individual mandate has been repealed?
Health Companies

- Blue Cross Blue Shield
- UnitedHealthcare
- Elevance Health
- Centene Corporation
- aetna
• Use knowledge of capital markets, mortality, and financial concepts when developing life insurance and annuity policies for individuals and groups to ensure that families are financially secure in the event of the policyholder’s death

• Involved in the investment of company assets to ensure solvency and strong long-term results
• Work on companies’ pension plans and 401(k) benefits.

• Help companies design competitive retirement packages to effectively attract, retain, and replace employees.
Life
Ex: How can life insurance products be adjusted to ensure attractive returns for policyholders in a low interest rate environment?

Retirement
Ex: Can a company’s pension program remain solvent when interest rates are low for a long period?
Life Insurance Companies
Retirement Companies

AIG

CalPERS

Fidelity Investments

ascensus

Always have a plan
03. Consulting
ACTUARIAL CONSULTING

• Actuarial consultants advise clients on financial and insurance-related decisions for their companies
  • Great communicators
  • More common in retirement and health
<table>
<thead>
<tr>
<th>Line of Business</th>
<th>Typical Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life</td>
<td>Clarify and analyze mortality rates</td>
</tr>
<tr>
<td>Health</td>
<td>Advise clients on the best healthcare plans for their company</td>
</tr>
<tr>
<td>Retirement</td>
<td>Help craft and price the best pension plan for their clients</td>
</tr>
<tr>
<td>P&amp;C</td>
<td>Create insurance products and provide strategic advice</td>
</tr>
</tbody>
</table>
## INSURANCE VS CONSULTING

<table>
<thead>
<tr>
<th>Insurance</th>
<th>Consulting</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Standard Hours</td>
<td>Variable hours</td>
</tr>
<tr>
<td>Less Travel</td>
<td>More Travel</td>
</tr>
<tr>
<td>Less direct contact with clients</td>
<td>Work directly with clients often</td>
</tr>
<tr>
<td>Interact with various departments so you get a good</td>
<td>Interact with various firms and clients so you get a better</td>
</tr>
<tr>
<td>idea of how the company works</td>
<td>view of the industry as a whole</td>
</tr>
</tbody>
</table>
Actuarial Consulting Companies

Oliver Wyman

pwc

Aon

Willis Towers Watson
NONTRADITIONAL ROLES

• There are various risks and ways to maximize efficiency in every industry
• While actuaries are most found in insurance companies, there are also actuaries in:
  • Accounting/Auditing
  • Government
  • Banking/Finance
  • Sports
  • Meteorology
  • Private corporations
  • Teaching
  • And more!
SPECIALIST INSURANCE

• There’s insurance for practically everything. For example:
  • Bruce Springsteen's voice
  • David Beckham’s legs
  • Egon Ronay's taste buds
  • Cristiano Ronaldo’s legs - $144 million
  • Alien abduction insurance for ~ 30,000 policy holders
KEY TAKEAWAYS

• Actuaries typically for insurance companies or go into consulting
• P&C, Health, Life, Retirement

ANNOUNCEMENTS

• OLA Info Session Mon. 11/6
• CAS Student Conference Mon. 11/7
• Blue Shield of CA Info Session Mon. 11/7 6PM

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Thank you

Any questions?