



SOUND NAVIGATION UNCHARTED WATERS

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Long Term Claims Model

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OVERALL DESCRIPTION

This paper describes the statistical methodologies behind a recently developed model at ACC to

- project the future size of the long-term¹ weekly compensation claims pool, and
- provide an insight into the past and future case mix of these claims

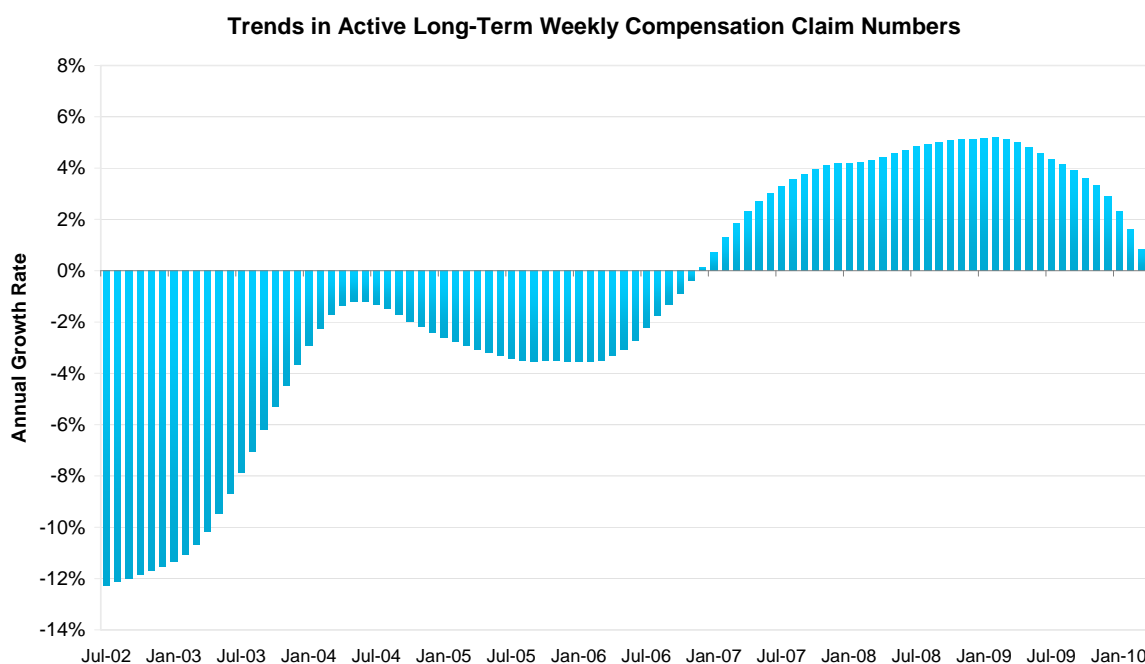
BACKGROUND

Over the past 18 months, ACC has faced significant changes both in terms of its external and internal environments.

Two of the key operational changes were:

- the establishment of a specialist rehabilitation team (the Recover Independence Service team) which focuses on claims that have had weekly compensation payment in excess of two and a half years; and
- the adoption of a new case management model using a triage approach.

In addition, recent years have seen a steady increase in the rate of growth in long-term claims, as shown in the graph below.



In the external landscape, the latest economic recession has led to a significant decline in new weekly compensation claims, while the change in government in late 2008 saw a reversal of major benefit changes introduced earlier in the same year.

Given these changes, questions were asked about the future numbers of weekly compensation claims which currently make up around 28% of ACC's outstanding claims liability.

¹ Long-term claims are claims that receive earnings related compensation for more than a year.

MODELLING APPROACH

The model analyses the characteristics of past and present long-term weekly compensation claims and projects the number of claims remaining on ACC under different scenarios.

There were three components to our modelling approach:

1. *Cluster Analysis* was used to segment the existing long-term weekly compensation claims pool. The aim is to identify groups of similar claims so that we can track changes in the case-mix of long-term claims over time.
2. *Survival Analysis* was used to determine factors that influence the duration of long-term claims. This provides a probability of exit for each individual claim.

In particular, the performance of the Recover Independence Service team was analysed and the rehabilitation outcome achieved by this team was an important factor.

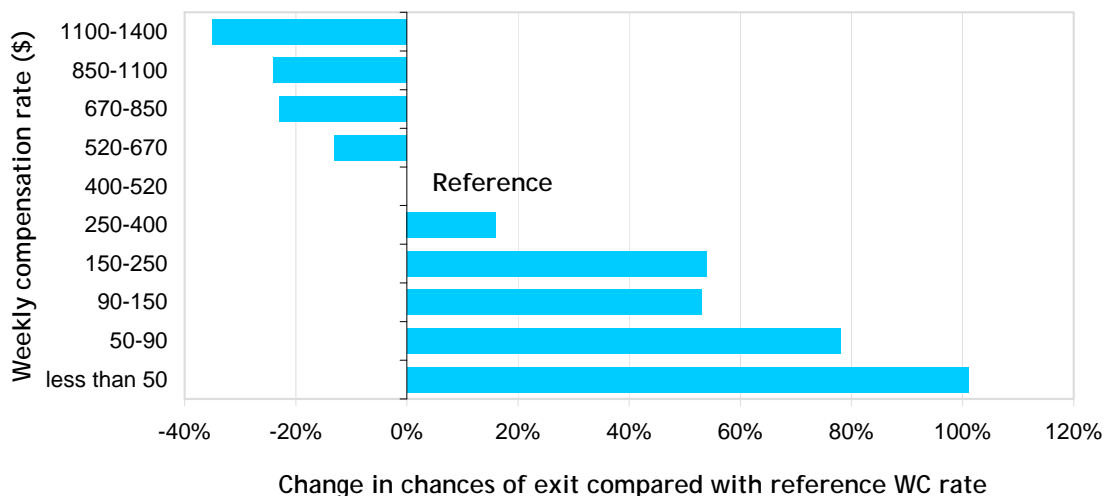
3. *Simulation* was used to project the future long-term claim numbers. This part of the model uses the findings of the survival analysis and is based on assumptions about future claims entering the long-term claims pool and the future effectiveness of the operations model.

ANALYSIS

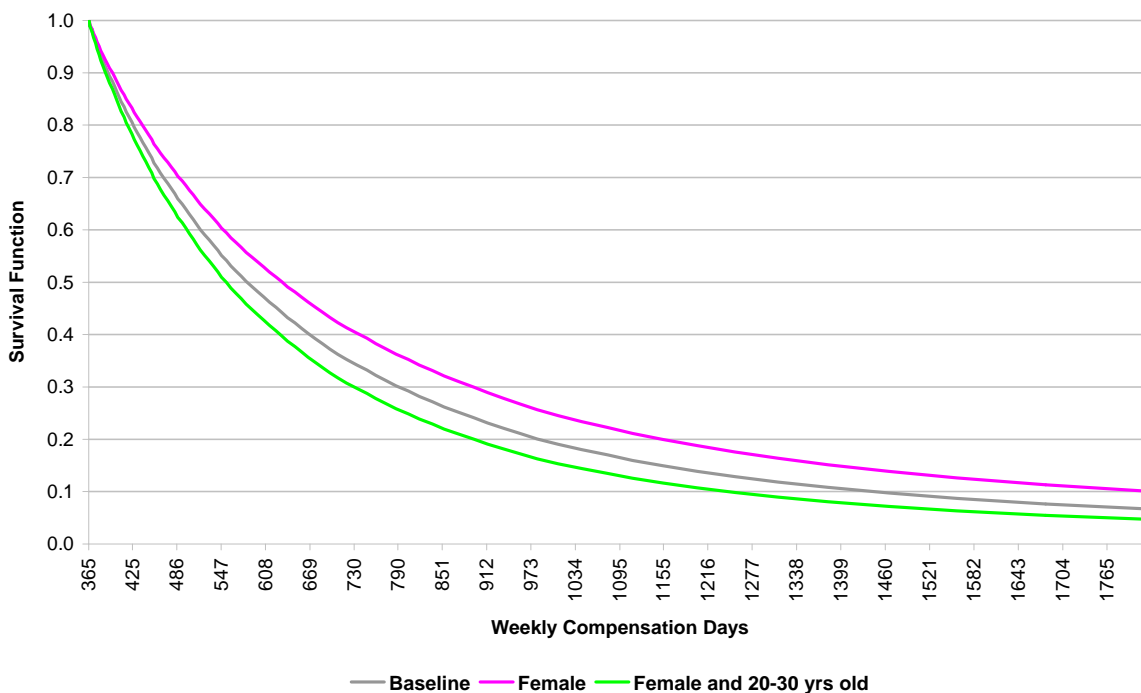
Survival analysis highlighted the differences in the chances of exit for various claim and claimant characteristics such as

- lag between injury and lodgement of claim
- multiple injury indicator
- injury diagnosis
- injury site
- scene of injury
- serious injury indicator
- at work injury indicator
- occupation
- pre-injury work strenuousness
- payment rate per week
- gender
- age at start of weekly compensation payment

For example, the following chart illustrates that the rates of weekly compensation payment have an inverse relationship with the chances of exit - the higher the payment the lower the chances of exit. This means claims with higher rates tend to have a longer claim duration.



The next chart shows the changes in survival probability for a claim after allowing for individual characteristics.



The baseline survival curve [grey curve] shows the survival function for a “typical” or pre-determined reference claim. This baseline curve is adjusted for a female claimant. Women have a worse recovery rate so the survival curve [pink curve] moves upwards.

The baseline curve is further adjusted for a female claimant aged between 20 and 30 years old. The curve moves up to account for the female claimant but then down to account for the youth of the claimant (and therefore better recovery rate) [green curve].

To project future claim numbers, assumptions were made on

- growth assumption for new claims
- short-term reduction in the number of claims entering the long-term claims pool
- the length of time this short-term improvement will last
- long-term reduction in the number of claims that will enter the long-term claims pool
- long-term improvement due to the rehabilitation outcome achieved by the Recover Independence Service team compared with historical performance before its establishment
- long-term improvement in the remaining case management performance

RESULTS

Base on the assumptions above, three sets of scenarios were projected for the numbers of future long-term claims on weekly compensation.

Total Number of Long-Term Claims

