The return-to-work performance rates of different workers' compensation insurers in NSW

- **Graph Objective**

Workers Compensation Insurance is compulsory for employers to take to cover their employees in Australia. If employees are sick or injured at work, they should receive compensation to pay for their treatment and wages while they're not fit for work ("Welcome to the Fair Work Ombudsman website", 2020). This is a way to protect workers 'rights.

The law requires injured workers to return to work as soon as possible after they recover. The return to work plan refers to helping these injured workers recover and return to work. ("Return to work | Safe Work Australia", 2020). return to work rate is an important indicator to measure the return to work plan. Returning to work as soon as possible has important health implications and benefits and can help workers recover from injuries ("What is Good Work?", 2020). If workers are absent for a long time, they may harm their lives and health.

graph objective is to study the return to work efficiency of different insurance companies through the return to work rate and duration. This can help workers and employers choose the type of insurance that is more beneficial to them.

- **Data management**

The raw data is from State Insurance Regulatory Authority (SIRA)'https://www.sira.nsw.gov.au/open-data/system-overview/rtwdata.The original data is about Workers Compensation System Monthly Report.

There are several sheets in this file. For this study, I only use the Insurer Type sheet. There are five features in this data. They are financial year, month, type of insurer, return to work rate and return to work duration. Insurance companies are divided into four types, namely the Self insurers, Government self-insurers, Specialized industry insurers, and Nominal insurers. The Return to work (RTW) rate is the percentage of workers who have been off work as a result of their employment-related injury/disease and have returned to work at different points in time from the date the claim was reported ("Workers compensation system explanatory note September 2019", 2019). The RTW duration has four intervals, 4 weeks, 13 weeks, 26 weeks and 52 weeks.

The data management step is copying choosing data to the excel file readable by Tableau. The original data is a cross-tabulation. First, I set the main features which are time, duration, RTW rate and type of insurer and extract and pivot the data to fill in the new form. I only keep the data of

2018 and 2019 to analyze the relationship. There are no missing values and duplicate data in this set of data.

- **Visual implantations and retinal variables**

  I use a slope graph to show the comparison of different types of insurers. I use different colors to refer to a different duration.

  Different insurance companies use different modules, but they are placed in parallel so that the grid line can be used to reflect the RTW rate of the same duration of different insurance companies.

- **Graph identification and enhancement**

  The graph's objective is to find the return to work efficiency of different insurance companies through the return to work rate and duration. From the original data, we can see that no RTW rate is below 60%, so I set the rate axis to start at 50% so that the slope change can be fully expressed.

  In the caption, I marked the data source and different colors represent different duration and I omitted 0 of the axis label. I keep the default gridline to help the reader to compare the different types of insurers.

  We also care about the RTW rate trend from 2018 to 2019, so I set the length to start and end to circle and show the percentages directly.

- **Visual perception and specifically the Gestalt principles**

  We want the injured employee to go back to work as soon as possible, so I set the 4 weeks feature as a red color which is a more saturated color to focus the reader’s attention. I used a white background and colored lines to highlight the contrast. I use shape-circles at the end and beginning of line segments to enhance readers' visual perception.

  For proximity, I put the RTW rates of different durations of the same insurance company in a module, so that the line segments are closer and easier to be perceived by people. To put these modules in a parallel place, we first compare the data of different insurance companies in different periods, and then horizontally compare the data of different insurance companies at the same time.

- **Visual decoding**

  Here is my proposed solution:

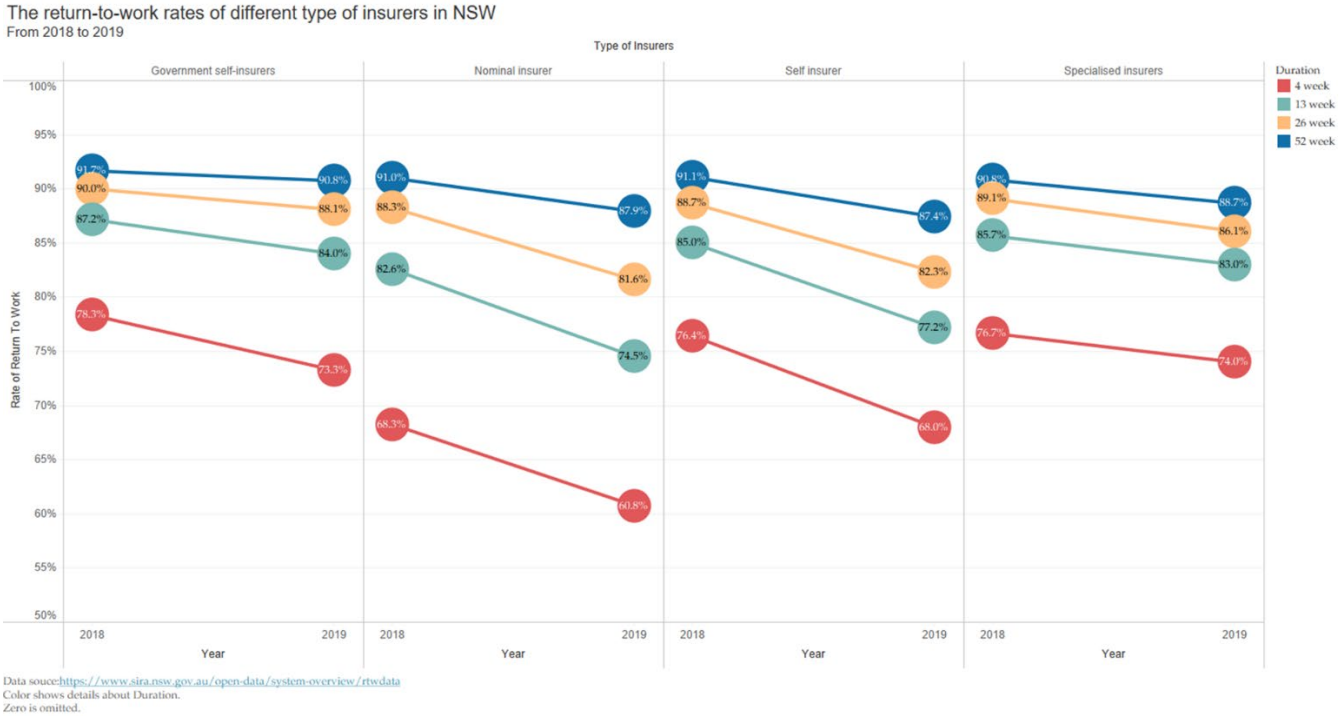

Figure 1. The return-to-work rates of different type of insurers in NSW

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The figure above plots the comparison that the rates of different durations of different insurance types in 2018-2019. We can see that RTW rate trends of all insurers are declining. In 2018, Government self-insurers performed best among all durations, and all RTW rates were higher than other insurers. But by 2019, all RTWs have dropped significantly, and the better performance is still Government self-insurer, but Specialized insurer has the highest RTW rates of 4 weeks.

In conclusion, employers could choose Government self-insurer and Specialized insurer for their employees. I do not recommend choosing Self insurer and Nominal insurer as their worker insurance. However, I think all the insurers should find why the RTW rates declined.

References:

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