# CashCalc Specification Sheets (Client Facing)

## Early Retirement Calculator

### Overview

The Early Retirement Calculator is used to show the client the forecasted income that they would receive if they were to take their pension early, this would be used to show a client what their immediate income would be if they were to take their pension early, or if they were to defer the income for a number of years. This calculator takes the Immediate Income, Deferred Income, the number of years this income is deferred and the Inflation Rate. This data is used to plot a standard and cumulative graph outlining the growth of the Immediate Income and Deferred Income annually at the given rate of inflation.

### Assumptions

Below is a list of all assumptions made in order to perform the calculation:

- Growth is calculated on an annual basis, from the day that the forecast is created
- The forecast is shown over the next 40 years, from the day that the forecast is created
- Figures are rounded up to the nearest penny

### Calculations Breakdown

The calculations require four parameters in order to calculate the given output, these being:

- Immediate Income
- Deferred Income
- Years Deferred
- Inflation Rate

The Early Retirement Calculator estimates the growth of the immediate income and the deferred income year by year using the rate of inflation. This can be reproduced with the following equations, where n is the year of the calculation, the deferred income will be zero if n is less than years deffered:

$$\text{Immediate Income}_{(n)} = \text{Immediate Income}_{(n-1)} \times \text{Rate of Inflation}$$
$$\text{Deferred Income}_{(n)} = \text{Deferred Income}_{(n-1)} \times \text{Rate of Inflation}$$

The standard tab will plot each of these figures on a graph, showing the client their income per year for both forms of income. The cumulative tab will plot a graph using these figures to create a running total of the client's income up until year 40 for both forms of income.

A PDF report can be created from this calculator which contains detailed information about the relevant client's details and the outputs of the calculations performed. The data plotted in graphical form is created by using the GoogleChartAPI.