mascil

Mathematics in the World of Work: Insurance

Investment and insurance

- An investment fund is set up
- Investors pay a set amount at the beginning of 20 years. The amount they pay depends on how likely they are to die.
- The fund is invested and grows with compound interest.
- If investors die, the fund pays beneficiaries an amount.
- After 20 years the survivors share the money left in the fund.

Task

Your role is to model this situation. Use the spreadsheet provided and build up your model in steps:

1. Work out how a fund grows over time. Choose your own figures for
    - Number of investors
    - Amount invested
    - Interest rate.

    These should be variable so that it is easy to change them.

    Experiment to see what happens to the fund when you change these.

    What assumptions have you made?

2. Add in figures for
    - Amount paid out per death
    - Number of deaths per year.

    These should be variable so that it is easy to change them.

    Experiment to see what happens to the fund when you change these.

    What assumptions have you made?

3. Add in more figures for
    - Percentage of male/female contributors
    - Death risks for male/female (use appropriate data to get these)
    - Payout per person at the end of 20 years

    The first two should be variable. The payout is calculated by the spreadsheet.

    Experiment to see what happens to the fund when you change the variables.

    What assumptions have you made?

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