



Government
Actuary's
Department

We are GAD

Professional, reliable and trusted

We're financial risk professionals and modelling experts. Our skills can help government in complex areas around long-term risk and uncertainty. We apply these specialist skills in insurance, investment, data science, modelling, quality assurance, pensions and social security.

We're proud to be accredited under the Institute and Faculty of Actuaries' Quality Assurance Scheme, a voluntary accreditation scheme which recognises organisations' commitment to quality actuarial work.

Modelling

We have significant experience and expertise in providing advice to public sector organisations on financial and demographic modelling, as well as other bespoke modelling services. A common theme throughout these activities is GAD's use of robust models to inform decision-making, which is a key area where our knowledge, experience and skills can add real value.

How we can help you

We can provide advice and guidance at all stages of the modelling process including:

- providing support in developing, implementing, maintaining and refining models
- assessing the extent to which an existing approach is fit for purpose
- understanding and communicating the outputs of models and their significance to the decision-making process
- developing a model framework to help improve modelling and mitigate modelling risks
- providing a full modelling service from consideration of model design through to producing and interpreting results and making recommendations



Case study: Easy-to-use tools

We help countries with disaster risk financing

We have developed modelling tools which help the World Bank and developing countries plan better for financial losses relating to natural disasters such as floods, hurricanes and droughts.

Our user-friendly spreadsheet tools are supported by 20,000+ lines of code, which we designed and delivered. We used publicly available data, so that the tools are open-source. Developing countries are better equipped to manage the financial consequences of natural disasters.

The tools can be used by a diverse range of stakeholders. They have 2 user modes – basic and advanced – and are set out in a user-friendly way with minimal inputs required. The tools are accompanied by instructions tailored to the level of use.

GAD designed clear interfaces where users can input loss data and model a risk profile by fitting distributions to the data and:

- input financing assumptions to meet disaster losses and compare multiple options
- interact with 40 dynamic exhibits which display results of underlying risk profiles and the impact of financing strategies
- investigate more advanced modelling options

Case study: Student loans model

GAD develops model to support student loans sale

We developed a model to project the cash flows arising from a closed book of student loans to inform the first 2 student loan sales. UK Government Investments (UKGI) asked for a model to perform well in comparison to known historical data and to be:

- sensitive to appropriate factors and assumptions
- well-presented and documented

Despite the availability of alternative models developed in the public and private sectors, UKGI chose the GAD model because of the accuracy of the model output and the simplicity of the modelling approach. Demonstrating robust modelling performance to investors increases their confidence in the behaviour of the underlying asset which could ultimately lead to increased proceeds for government from the sale of the student loans book.

Contact us

enquiries@gad.gov.uk
www.gov.uk/gad
020 7211 2601

