ACTUARIAL SOCIETY OF SOUTH AFRICA

INFORMATION NOTE 015: PROFESSIONAL AND ETHICAL CONDUCT IN RESEARCH

Classification

This document is classified as an Information Note.

Abstract

This information note sets out specific professional and ethical principles to be considered by a member performing research These issues are most pertinent where people accessing the research would expect it to be impartial or the work could be interpreted to be the view of the Actuarial Society of South Africa.

Purpose

This document is intended as a guide to support actuaries in fulfilling their responsibilities and is not a complete list of all possible considerations. It is not intended to prescribe requirements nor provide formal actuarial guidance.

Legislation or Authority

The Actuarial Society of South Africa.

Application

The Information Note applies to ASSA members performing research.

Author

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Status

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1 Introduction

1.1 Background

Existing guidance already states that the actuary must:

- only take on work where they are competent, (APN 901 Par 2.1.2)
- ensure the data they use are sufficient and reliable for the purposes (APN 901 Par 2.5)
- care should be taken in terms of the suitability of assumptions and methodology adopted (APN 901 Par 2.7)

A member shall act honestly, with integrity, competence, and due care, and in a manner that fulfils the profession's responsibility to the public (ASSA Code of Conduct). It follows logically that the same principles apply when members undertake research.

Whilst there is no requirement to publish any research done, members are encouraged to "consider the public interest" and benefit that may be gained by making their research publicly available.

1.2 Scope and limitations of this note

This information note covers research by members across a wide range of research areas. It is not limited to formal research intended for publication in an academic journal. Research could include any of:

- formal research for academic purposes (for example, a higher degree);
- research done under the auspices of ASSA;
- research undertaken at the behest of, amongst others, a client, employer or industry body, or other interest groups; and
- research undertaken in the course of delivering an actuarial service.

For clarity, research may be paid or unpaid.

Research is different to opinion or professional judgement and can be defined as a process of systematic inquiry that entails collection of data; documentation of critical information; and analysis and interpretation of that data/information, in accordance with suitable methodologies set by specific professional fields and academic disciplines.

This note provides only some high-level considerations - more in-depth considerations may be necessary depending on the scale and sensitivity of the research.

2 Requirement to follow other applicable guidance

Research may be governed by other frameworks and legal requirements. These could include the conditions of employment or contract with a client, obligations arising from other professional or academic bodies to which the researcher is a member, and the laws of the countries in which the research is conducted, or in which the researcher is based.

In order to comply with all these requirements, a member may need to comply with the most stringent of these requirements.

3 Consideration of harm versus benefit

A key ethical consideration relates to the benefit that can be derived from the research relative to the harm that could be done by it. These harms and benefits may be considered at both the individual and collective level. An example of individual harm could be the discomfort of an individual study participant and considerations around informed consent may also apply. An example of collective harm could be a piece of research that could result in discrimination or unfair treatment of a group defined by race, religion, gender identity or disability status.

As the potential for harm increases, the bar for necessary potential benefit is raised.

Even if the research done is not intended to be in the public domain, it could become public, for example, if the client decides to release it, whether or not this is contractually permitted. This can result in unintended harm if research findings are taken out of context.

It is suggested that the researcher consider how their research might be used, or deliberately or unintentionally mis-used, and how potential harm can be mitigated. Additional insight into issues surrounding the evaluation of harm versus benefit could be gained by referring to the following documents produced by the Institute and Faculty of Actuaries:

- Guide to ethical data science
- Ethical and professional guidance on data science

4 Rigour of data, methodology and assumptions and link to harm versus benefit

4.1 Scientific rigour

It is suggested that researchers consider whether other research they are relying upon demonstrates scientific rigour as well as consider the rigour in their own research.

It is generally held that research that is not scientifically rigorous will not produce scientifically sound results.

This means that the benefit to the client or society of the research being done is negligible and in these circumstances the harm done may far exceed the benefit.

The member could consider several items when evaluating scientific rigour. Some items to consider include:

- Data sample size, relevance, quality and whether the sample is, for example, representative, unbiased or unbalanced.
- Assumptions underlying statistical tests.
- The pitfalls of flawed statistical testing such as data-dredging, p-hacking, Freedman's paradox and the multiple comparisons problem. It may be useful to apply special care and methods if many hypotheses or regressions are tested, or many features are used in seeking some relationship. Relevant methods may include the Bonferroni correction, the Holm–Bonferroni method or the Benjamini-Hochberg procedure.
- A clear understanding of the control group.
- A clear understanding of confounding factors (another factor that may cause the same response as the factor you are actually testing). A case in point may be to

consider whether disaggregation by sex is necessary since lack of sex differentiation may cause bias such as when applying the results to a sample with different gender mix than that studied in the research. Similarly, disaggregation by age, social economic group, education level, urban/rural residence may be necessary.

- Whether another actuary or researcher presented with the same data might reasonably be expected to come to the same conclusions. Where there is potential for another researcher to reach different conclusions, it is recommended that this is highlighted. It may be useful to include what different assumptions or perspectives may lead to this different conclusion and what the impact of this different conclusion might be.
- In order to produce research within reasonable timeframes, pragmatism may be necessary. In this case, it is recommended that the limitations of the data and methodology be clearly set out in the report.

4.2 Peer review

Peer review is an important part of research. Peer review is covered by the ASSA information note on the peer review process ('PRP information note'). In the research context, this information note sets out the requirements for the peer review as defined in the PRP information note. Although some peer review can be formal as described in the PRP information note, it is suggested that the process adopted in research should mirror the requirement for an informal peer review mentioned in that note.

The general principles outlined in the PRP information note relating to scope, engagement and appointment, professionalism and the outcome of the peer review for an informal peer review thus apply. The following considerations apply specifically to peer review for research purposes in addition to those set out in the PRP information note.

The reviewer does not need to be a Fellow member of ASSA but could be a member of an IAA body. In certain cases, it may be most appropriate to have someone outside the profession review the work. It is suggested that the reviewer be provided with the PRP information note in these cases so that the peer review covers the necessary areas.

4.2.1 Methodology review

It is suggested that a peer-review of the proposed methodology be completed before the research is undertaken.

At this stage, the potential harms and benefits could be considered by the reviewer and discussed with the member. The reviewer need not have specialist research expertise and their main function is to provide a fresh perspective and an evaluation of the reasonability of the proposed methodology.

4.2.2 Results review

It is recommended that the research be peer-reviewed before release to assess for any potential mistakes or inaccuracies in the methodology or results so that the researcher may be made aware and make appropriate corrections. This may help avoid reputational damage to the profession or researcher as well as more general harms arising from the research results.

4.3 Replicability and preservation of data

Research should ideally be replicable. The process of repeating research on the same or different data promotes rigour and can re-enforce, or call into question, the results of earlier

work. Assuming the original research was ethically sound, more rigour and more confidence in the results can improve the benefits and make the research more worthwhile.

Conversely, repudiating research may reverse incorrect decisions made from incorrect conclusions.

It is recommended that data, models, and results be stored safely after the research is completed. If appropriate given the source and nature of the data, the data could be made available for others to perform further research, or to interrogate the existing research for new insights, confirmation, or refutation. It is recommended that the researcher consider:

- How data will be collected, used and stored;
- Who the Intellectual Property (IP) owner is; and
- How will it be disposed of or re-used.

5 Honesty and conflicts of interest

Actuaries are required to act with honesty and integrity at all times and to manage their conflicts of interest (ASSA Code of Conduct).

The researcher may have conscious and unconscious biases regarding a particular topic. However, care should be taken to avoid producing research that is overly influenced by their views and where their views can be misinterpreted as the views of the client, the employer or the profession. It is often the most appropriate course of action for researchers to start their research from a neutral standpoint.

When conducting research it is important to remember that no result is still a result.

Although this may be disappointing if a certain outcome was desired, it is not advisable to try various tests until one gives the desired result, particularly if the assumptions underlying the statistical test are not met in the first place.

Members are encouraged to still consider publishing the "no result" research. Reluctance to publish no-result research results in the literature on a topic becoming biased towards literature containing a positive result which can create a misleading impression that a positive result obtained, for example due to random variance, is the only valid result.

If the terms of employment or contract to produce the research places the decision to publish or not outside the hands of the member, the member may consider these contractual terms at the outset when evaluating the potential benefit vs harm of the research.

It is suggested that any funding for the research be disclosed. This may be important not only for the intellectual property rights of the funder, but to help manage what could lead to a material conflict of interest

6 Collection of primary data relating to humans

Primary data is data the researcher collects themselves or has someone else collect data on their behalf. For example, this could be data gathered via a survey, from direct observation of human behaviour, from interviews or when the researcher helps design focus group questions.

6.1 Informed consent

The following are components of informed consent:

- The research subject should be competent to assent to being part of the study. If the research subject is not fully competent, consent must be obtained by a competent party.
- The research subject (or consenting party) must be given sufficient information to decide whether or not to participate.
- The research subject (or consenting party) must consent voluntarily. This means no coercion or undue inducement such as financial rewards may be given. Participants should be given the opportunity to withdraw from the study without penalty at any time.

If any of these three criteria are not met, the research subject is considered vulnerable and this influences the harm-vs-benefit decision.

In general it is suggested that informed consent be obtained for all human data except in the case of certain observational studies where if the person knew they were being observed their behaviour might change. In these studies, the research participants are often going about their everyday lives.

Informed consent is typically obtained from individuals but additional consent from family members and the community may be desirable.

6.2 Standard of care

Very often research involves changing one factor and seeing how the response variable changes. This may involve dividing your data sample into a test group (which is given a certain treatment) and a control group (which is not).

It is important to consider the standard of care which the control group is given. This could be a placebo or no treatment but it is suggested that the researcher consider what the current standard of care is and provide that. The guiding principle in this consideration is that the participants should be no worse off than the general population for having participated in the trial.

7 Use of secondary data

Where the researcher does not collect the data themselves, there may still be ethical issues involving data.

- If the data are not in the public domain, does the researcher have permission to use the data for this purpose?
- Is it clear that the party collecting the data obtained informed consent for the data to be used?
- Is it clear that the standard of care applied to the control group was reasonable?

The latter two points do not invalidate the use of the data. However, it is recommended that the researcher apply extra care when clarity cannot be obtained.

8 Privacy, confidentiality and anonymity

Data protection acts like POPIA provide individuals with automatic protections regarding their data privacy. Data containing sensitive information like income and health-status require

special consideration under POPIA. Even data containing less-sensitive personal information may create privacy concerns.

Very often these issues can be resolved by anonymising the data. However, it is important to remember that in a world of big data, simply removing someone's name, policy number or an identification number may not mean that they are anonymous.

It is important to also note if there is any data provided in confidence, it is suggested that this data not be shared at all.

Basic data governance principles like who has access to which data, password protection, destruction of data and backups all apply to research.