
Celebrating the *British Actuarial Journal's* 20th anniversary: looking at the next 20 years of actuarial research

Abstract of the London Discussion

[Institute and Faculty of Actuaries, Sessional Research Event, London, 21 September 2015]

This abstract relates to the following paper: Prof David Wilkie, F.F.A., F.I.A.; Dr David Hare, F.I.A.; Andrew Smith, Hon F.I.A. *British Actuarial Journal* celebrates its 20th anniversary. *British Actuarial Journal*.

The President (Ms F. J. Morrison, F.I.A.): We are here tonight to celebrate the 20th anniversary of the *British Actuarial Journal* (BAJ). In its 20 years it has made an enormous contribution to the advancement of actuarial science through its high-quality content and the promotion of thought-leading research.

Every sessional meeting is recorded in the BAJ and so it seems only right and proper that our celebratory meeting be a sessional meeting. But we are not here just to celebrate the great work of the BAJ. We are also here to explore the future of actuarial research.

We have a panel of experts here, all Institute and Faculty members. Professor David Wilkie is the Chairman of the specialist actuarial and software company InQA. He has been a vice-president of both the Institute of Actuaries and Faculty of Actuaries. He has chaired the Executive Committee of the Continuous Mortality Investigation Bureau. He has authored a number of highly regarded actuarial papers and has been an associate editor of the BAJ and of *ASTIN Bulletin*. He has been awarded a number of doctorates and the CBE. Last, but by no means least, he has received gold medals from both the Faculty and the Institute of Actuaries.

Andrew Smith is a partner at Deloitte. The Institute and Faculty of Actuaries (IFoA) has benefited greatly over the years from his volunteering work on many working parties and presentations at numerous meetings and events worldwide. He has authored around 40 research papers. Many of these papers have won prizes, and Andrew is also a recipient of the Finlaison Medal. It was a great pleasure for me that earlier this year Andrew was elected as a new Honorary Fellow of the Institute and Faculty.

Dr Deborah Cooper is a partner at Mercer. She has a PhD in mathematics and she lectured at City University on actuarial science. She has published and presented several research papers. She is a member of the Institute and Faculty Council, a member of the Pensions Board and chairs its Research Committee. She also chairs the Continuous Mortality Investigation's Self-Administered Pensions Committee. Tonight she is here as a member of the Institute and Faculty's Research and Thought Leadership Committee (RTL), which is the primary governance committee for our research these days.

Kelvin Chamunorwa is a consulting actuary at Towers Watson. He has a keen interest in micro-insurance and is a member of the International Actuarial Association's Microinsurance Committee.

For this audience, he is probably best known as the current Editor of *The Actuary* magazine, which is one of our key tools for keeping members abreast of developments in actuarial science. Kelvin was elected to the Institute and Faculty Council this year.

I am going to make a very few opening remarks and then the panel are going to share their thoughts before I open up the discussion.

As President, I have chosen to focus on the importance of promoting actuarial science to those outside our immediate membership. I am promoting our actuarial skillset, the diversity of areas in which actuaries could work and the value we can add as regulated professionals in a changing world. It is clear to me that businesses, governments and society can greatly benefit from the skills, professionalism and expertise of actuaries. But they will only know that we can assist if they know that we exist. That is one of the places where research can really help because everything we do and say is underpinned by our evidence base. There are some publications in the council chamber; an example is a recent one: "Informing the Debate" that gives the flavour of our current approach.

Colin Wilson, our President-elect, is going to focus on research during this year. He could not be here tonight because he is promoting the Institute and Faculty in China. He has asked me to say a few words on his behalf. Colin has focussed on the two ways in which thought leadership can be defined. The first is using expertise and insight to create or extend thinking and understanding in a way that can benefit others. The second is adding genuine value by sharing knowledge and information that matters. What Colin is saying is that we must see that it is the impact beyond our profession that is important. So dissemination of our research through means like the *BAJ* is absolutely vital. He is observing that we do not have to create the insights ourselves but we do have to understand what is important and then put it out to that wider world.

I know tonight that I am surrounded by actuaries, non-actuaries, academics, real thought leaders, in all the related fields, so I am going to do a little bit of a sales campaign. I hope that you are all aware of our open call for research which we recently issued and is still live. It marks a step change in our approach to research. It shows what we are going to do in future to sustain actuarial science as a relevant discipline. You are the very people who can make a difference: please go back and talk to your colleagues and peers and encourage them to engage with our research programme.

That is all from me for the moment. Our first speaker is going to be Professor David Wilkie, who is going to say a few words about the *BAJ*, the *Annals of Actuarial Science (AAS)* and how they are linked to actuarial research more generally.

Prof A. D. Wilkie, F.F.A., F.I.A.: When I became an actuarial student in Edinburgh, which is over 60 years ago now, the Faculty sessional meetings in winter months were the main events where actuarial ideas were discussed in Scotland. Of about 300 Faculty Fellows at that time, perhaps 100 attended. The Institute had similar meetings with about the same number attending out of about 1,000 Fellows, still quite a large percentage. The papers and discussions were published in the *Transactions of the Faculty of Actuaries (TFA)* and the *Journal of the Institute of Actuaries (JIA)*. There were also student society meetings in both Edinburgh and London. Selected papers were published in the *Journal of the Institute of Actuaries Student Society*, which changed its name later to the Staple Inn Actuarial Society (SIAS), and very occasionally in the *Actuarial Students' Magazine* in Edinburgh. The only other actuarial meetings to which UK actuaries might go were the quinquennial international congresses.

Since then a lot has changed. The international groups, Actuarial Studies in Non-Life Insurance (ASTIN), Actuarial Approach for Financial Risk (AFIR), and now others, were founded, and the *ASTIN Bulletin* was published. In the UK, the General Insurance Organising Committee was started in the 1970s, and now every speciality has an annual conference. There are also many day events. So now far more is going on and sessional meetings are less of a highlight.

TFA and *JIA* were amalgamated into the *BAJ* some 20 years ago, which is what we are celebrating. The *AAS* was a daughter publication coming out of that merger. Practising actuaries may not realise the reasons for why *AAS* came about. *TFA* and *JIA* always included occasional papers as well as the sessional meetings papers. When actuarial departments were set up in universities, there were then academic actuaries who wished also to publish their research. But in the academic world only journals which have a system of strict prior refereeing are deemed worthy of any credit. *BAJ* did not go through this process for sessional meetings papers, so was not academically creditworthy. *AAS* does do this and thus has academic credibility.

BAJ and *AAS* are still published in paper form and are also available on the internet. But many of the papers that are presented at our conferences, which may also be very valuable, seem to fall by the wayside. There is no central publication system. The main Institute and Faculty website, like many others, always seems to be being rearranged. So URL addresses are not permanent. Therefore, I would like to suggest that the Institute and Faculty sets up a special actuarial publications website separate from the main site. This publication website should have a permanent format and include as many actuarial papers as it can obtain. *BAJ* and *AAS* would need the cooperation of the present publishers, Cambridge University Press, but the old *TFA* and *JIA*, and possibly the old *JIASS* and *ASM* could be included as documents of at least historical interest, though, actually, there is a great deal of value in many of the papers in them.

Just as important, the papers or presentations at all conferences and all other events, SIAS meetings and so on, and Continuous Mortality Investigation (CMI) Reports and CMI Working Papers, could all be included, unless the authors did not wish them to be made available. International journals and conference proceedings might also be able to be included or cross-referenced.

Papers would need to be well indexed, so one could look up, say, all the papers by Frank Redington or by Andrew Smith, or all the papers on option pricing or Solvency II, or all those published in a particular year or in a particular journal or conference over the years. Good software to do this may be available, but, if not, a good system could be written.

I have too often been told that some library can obtain whatever I wish, but then I find that I have to know the exact title, date of publication, ISSN number or other specific details to find it, which is not ideal. One needs to be able to ramble through a library too. That is my first set of points about publication.

This meeting is also about research and I also have comments about this area. A lot of good theoretical research can be done by those at universities, but they often need practical experience and relevant data for their ideas to be useful. A lot of practising actuaries have the experience and the data but they may lack familiarity with the latest theoretical methods that could be applied. There are of course exceptions on both sides, and some actuaries move successfully from one field to the other. Practitioners need to realise that academics need to be able to publish to have successful careers. Confidential consulting has no academic credibility. An academic who wishes to do a lot of

consulting might as well change jobs. But then they might lose the interaction with their academic peers.

I am particularly interested in investment research. I have seen too many academic papers that pay no attention at all to data and show no understanding at all of practical investment. There are lots of books on investment, some of which are very good. There are also lots of investment data. But many of the good sources, which are very efficient and up-to-date, are also very expensive. I suggested at a recent AFIR colloquium that they might set up a website with a record of free, or at least cheap, investment data that academics and others could use. Up-to-date data is not a priority for research, although it obviously is for trading.

General insurance data is harder to obtain because companies are protective of their detailed data, though a lot of summary data is published. Perhaps some actuaries in general insurance could persuade companies to make available out-of-date data, perhaps modified by scaling amounts by some secret factor, then academics could investigate it and provide ideas for practitioners to use.

The CMI seems to have taken a backward step recently, making data available only to subscribers and has not yet decided how to deal with all its publications. Unless academics can publish, there is little point in taking part in committees or working parties in any field. It should be possible to work out how to publish methods and principles that do not necessarily release confidential data.

An area in which I have a particular interest is in statistical modelling of investment data. I notice that a number of firms now provide economic scenario generators (ESGs), but only to clients and only for a large fee and with complete confidentiality. This is no way to advance ideas. Companies can obtain patents for objects they make and have a financial advantage for a while. But they do have to publish full details of what they are patenting, which others can look at and work out how to improve. Without an exchange of ideas, firms will not be able to improve their ESGs and they will all eventually become quite outmoded. Of course the confidential ESGs may use quite conventional published models but suppliers do not wish to say so. I suggest more transparency.

The President: Andrew Smith is going to talk next about the importance of research and the role of member-led research.

Mr A. D. Smith, H.F.I.A.: I have been a member-volunteer on research working parties for more than 20 years. I am proud of what many of these parties have achieved. I should especially like to mention the financial economics working party that produced a series of papers on insurance and defined benefit pension schemes in the late 1990s and the extreme events working party (chaired by Ralph Frankland) that remains active and has produced a series of papers over the last 10 years, many of them in the *BAJ*.

News is sometimes defined as “something somebody does not want printed; all else is advertising”. I think the same can be said about research. Most good research changes how we do our work. With any change there will be people who welcome the change and people who wish to prevent it. Some of the biggest positive changes in actuarial practice have their roots in working party output.

So, why are working parties so important? Member-led research allows a diverse group of people to combine their minds on important topics. The involvement of so many people only loosely controlled means that it is hard to suppress conclusions, and I am glad to say that is something we seldom attempt.

Working party research output sits in a beautiful no man's land. It is the joint view of the authors, not endorsed by their employers nor by the IFoA. What seems like a lack of accountability is a strength. It allows working party members some boldness in exploring difficult questions. It also allows potentially challenging conclusions to be promulgated and discussed without any one individual or organisation having to take the blame for having raised them. Individual actuaries, with risk-reporting responsibilities, may not always find it easy to balance commercial pressures with the professional responsibility to make management face up to business risks and uncertainties. I know of many cases where good member-led research, in the public domain, has supported actuaries trying to do the right thing in their day-to-day work, serving both the individual actuaries and the wider public interest.

In recent years, the threat or fear of litigation has become an increasing burden on working party output. We now have a volunteer induction pack requiring us to seek IFoA clearance for any third-party data that working parties use. I applied for this clearance on behalf of one of our working parties last January and we are still waiting for permission to use the data we have identified. The data in question includes the retail prices index from the Office for National Statistics, and gilt yields from the Bank of England. These, of course, are two data sources which David Wilkie has analysed extensively to build his stochastic asset model. I wonder if his work would ever have seen the light of day if he had to jump through today's hoops just to download public data published by the UK government.

Notwithstanding current obstacles, we should all be proud of the challenging and relevant research that working parties continue to produce. Every page is a direct result of volunteer determination and the intellectual freedom we grant to our working parties in our role as a learned society. I hope I will be allowed 20 more years to contribute, and I look forward to it immensely.

The President: In the final introductory speech, Dr Deborah Cooper is going to present on the vision of the Institute and Faculty's RTLC.

Dr D. R. Cooper, F.I.A.: I have been given a few minutes to describe the RTLC, which is the Institute and Faculty's new structure for directing and overseeing research done under the auspices of the profession. I will start with a bit of background to help you understand the direction of travel, and I might touch on some of the issues that Andrew and David have raised, although I am not sure if it will address all of them, particularly the lack of access to data.

As has already been described, the Institute and Faculty has a long tradition of research contributed to by a wide range of people and shared in different formats, including the *BAJ*. Largely, our research has been organised around practice areas and overseen by our practice boards. For those of you who are not members of the Institute and Faculty, practice boards are the committees that bring together members whose area of work gives them a shared interest. My role on the RTLC is partly due to being chair of the research committee of the pensions practice board.

Each practice board has its own research committee and our objective is to enable those working in our practice area to get together, mostly on a volunteer basis, to investigate immediate and longer-term areas that are relevant to the work that we are doing. In addition to the volunteer work, the IFoA sponsors research projects, for example, where it is identified there are possibly gaps in knowledge or where gaps in knowledge might emerge and where our input might have some relevance to contribute to its development. Often these projects are prompted by the Institute and Faculty's public interest responsibility.

This model has proved very successful. It has enabled us to develop new areas of practice and to improve the quality of work that we do in traditional areas, as Andrew has described.

However, the profession has grown dramatically over the past 20 years and the environment we work in has become a lot more challenging. It became clear to some of us that for the IFoA to continue to make the most of its members' contributions and to ensure that key areas were appropriately addressed, more direction and focus was needed to avoid duplication of effort.

In making any changes to the organisational structure for delivering and supporting research, we have been very conscious of the need not to undermine the work that is currently being done and the enthusiasm and individual expertise contributed by our very large and active volunteer community. So, after some deliberation, the IFoA Council agreed to establish a committee called the Research and Thought Leadership Committee, which reports directly to council. It has membership representing all of those interested or involved in research done by or on behalf of the IFoA, and it has a lay chair who can contribute a different focus and expertise.

It is just over a year since we started interviewing for the chair. We are extremely pleased at the quality of those who applied for the post, and towards the end of last year Professor Mark Cross was appointed.

Led by Mark, who has considerable experience in working in similar structures from his academic career, the RTAL was taken on a voyage of discovery. Whilst considering how we should organise ourselves to meet the IFoA's future thought leadership strategy, we also did not want to undermine what was currently being done. So our objectives have been to continue to support the work being done by volunteer groups, including giving clear guidance about how they can manage themselves and to explain to them the resources available from the IFoA executive. We also wanted to find out whether there was a model that would bring the volunteers together with more diverse groups of academics and practitioners to enable some of the research that we do to dig a little bit deeper and perhaps break a few boundaries and reach a wider audience.

In particular, we wanted to identify those burning issues where by applying our core skills alongside those from different disciplines, we could have a chance of making a tangible difference, in line with the IFoA's strategy, its public interest responsibilities and its obligations to support its membership.

Fundamental to this is our principle that where the IFoA sponsors research it should be of relevance to members, both academically and in practice. So Mark led a series of brainstorming and consultancy meetings involving both the RTAL and a wide range of other stakeholders and those who potentially might like to join our project. It became clear that there was a lot of interest in what we were proposing, and also that, even where people were approaching a discussion from different perspectives, there was a lot of common ground.

In particular, some topics kept coming up that could be categorised under two broad themes: the ageing population and the changing economic environment, including what financial markets can be reasonably expected to deliver now and in the longer term. Given the profession's background, it is probably no great surprise that these were the areas that the RTAL identified as being appropriate for us to pursue. Taking a narrow view, they have fundamental implications for the work that we do and the products and the advice that we and our employers provide. Looking more widely they also

have implications for the extent to which nearly all organisations, government and individuals, can address many of the risks that they face.

The RTLC decided to make the contribution to the intellectual capital being developed in these areas its main objective over the next few years. To make our aims achievable, we identified a number of subsidiary strands of work which can be addressed by different research groups. These range from high-level and theoretical questions, for example, about optimal levels of risk-bearing to more practical questions about the tools that could be used for monitoring and managing exposure to those risks.

As Fiona mentioned, the IFoA have accepted the results of the RTLC's deliberations, and in August published an invitation to groups to submit proposals for research projects in these areas, together with a document setting out the key questions which the RTLC considered needed to be addressed. The invitation sets out how we expect groups applying for funding to be structured. Since we are dealing with big questions, we expect the project to take some time to complete and to involve a range of disciplines. In particular, successful groups will have to include both practitioners and academics to ensure the right balance of skills are brought to bear. We also see a role for existing or future volunteer working parties. For example, their practical expertise could be used to help establish the initial research objectives or they could provide peer review while the work is ongoing or to the end product. However, in doing so, we are mindful of the need to protect their interests relative to those of the paid researchers.

Another criterion we think will help us meet our objectives is that any output produced will have to be in the public domain so that they can be accessed by anyone interested. This should help the IFoA meet its public interest objectives and evidence its thought leadership. It should also enable the work done to receive further review and additional checks which should improve quality standards. We hope, of course, that work will be further developed.

The RTLC's objective is not just to have research published but also to improve the quality of the work being done, create new opportunities for IFoA members and to create wider networks. For example, we want to give practitioners the opportunity to flex their research muscles, and academics the chance to experience the practical side of what they do. We hope, as a result, there will be closer working between the two groups and also, because of the different disciplines we expect need to be involved, greater cross-working between the IFoA and those working in other fields.

By way of example, we are already seeing that our finance and investment and our resource and environment practice boards are working with other disciplines, including climate change scientists to consider the impacts of climate change on future investment markets.

The RTLC is a new venture for the IFoA and these are very early days. The call for research projects is still open if any of you are interested. It closes at midnight on 5 October. With Mark's support, I think that we have developed a model that borrows from the processes followed by research councils without throwing the baby out with the bathwater and losing the best parts of our current working model.

In due course, we would very much like to partner with other interested parties in developing further work. In any case, by creating this focus and by seriously investing in expert groups and by encouraging working models that bring together people with different skills and backgrounds, the

IFoA expects we can more effectively support our membership and meet many of our key objectives and raise our profile as a thought leader.

The President: I would like to ask Kevin Chamunorwa about his thoughts on the dissemination of actuarial research.

Mr K. C. Chamunorwa, F.I.A.: I think, for a learned society, research is the bedrock of our profession. But I think we have to go a bit further than that and think how we can use that research to raise the profile of our profession.

I feel that our research is a way that we can make a stand about issues that we have researched and looked at objectively, and use that to project a measured stance in the public debate.

For me, I see research and our public relations agenda as quite intrinsically tied. In terms of dissemination, I think we need to consider that our members are all across the world now, particularly younger members, and there is a great diversity of experience and practice areas. We are in an age where the younger members in particular want information very quickly, on demand, in short, sharp snippets and in an interactive way. We need to think about how we can disseminate research to meet these criteria.

I also think we need to disseminate it outside of our profession as well. We need to be more courageous in the positions that we take.

Mr M. G. White, F.I.A.: I have a question for Deborah (Cooper). You described three or four projects with a total bill over 4 years, I understand, of £1 million. Was that per project or in total? These are big, ambitious projects and they require a lot of prior specification. But I am sure that there are some big questions that are such a challenge that the first step may simply be to get a multi-disciplinary group together, perhaps sponsoring a small event, to open Pandora's Box on the issue at hand. Is that something in which the RTALC may be interested?

Dr Cooper: The £1 million is the total amount. It is obviously a big spend for the IFoA over, I believe, 3–4 years for the terms of the projects.

We do not think that we are going to answer all of the questions that we have asked immediately. It is a long run. The nature of the projects is that they address open problems. These are not closed problems that can be answered in a 3-year timescale. They are questions that will have moved on by the time that we are 3 years into the future. This is the IFoA committing to a long-term investment in research.

Our hope is that once we have established ourselves as successful investors in research that we will be able to partner with other groups and more money will come flooding in, and so we will be able to be more ambitious in what we can achieve. So that is the answer to your first question.

Your second question was about whether we should have a meeting to launch things? This sounds quite sensible. I think it is something that we would very seriously consider.

I look to Sarah Mathieson for her views on this area.

Mrs S. G. Mathieson, F.F.A.: I think that is a really good suggestion. At the moment we are receiving proposals from research teams that are responding to the key questions. Having some sort of event or discussion at the start of some of the programmes would be very useful. That might help to inform people about more of the detail that the research programmes want to cover as part of their programme.

Mr T. J. Llanwarne, F.I.A.: First, let me just say that I am incredibly in favour of all that you are doing in this regard. I think what I would call the learned society is fundamental to a profession such as ours. I am really pleased to see a big initiative going on with such good people on board and such enthusiasm. I think that you are going to find that there are lots of ideas you can pursue, some of which work and some of which do not. You will learn from that in the process. That is good news and not bad news.

I wanted to raise a couple of points as you are going on that journey. The first one, if you are modelling processes, is on the Engineering and Physical Sciences Research Council. It is important to note that this is not a learned society, it is a funder. So are you seeing the profession as a funder or are you seeing it as a learned society? You might wish just to reflect on that dichotomy as you go forward. I do not mean to criticise what you are doing at the moment. I think in terms of destination it is quite important to understand where you are headed.

I got the feeling that a lot of this research is about us, the IFoA, commissioning research to push out to others. The second thing I wanted to suggest is that we should not underestimate the importance of research flowing the other way. This is absolutely critical regarding the type of research that Andrew Smith talked about when he talked about financial economics. There is a lot going on in other areas of which we, as actuaries, may not be aware which can be of real value to us in improving what we do.

I can give a couple of examples. The first is that there is a big new initiative on communication of uncertainty. I am attending a large meeting next Monday with a lot of academics who are getting into this sort of area. They will come up with their own ideas. I think I might be the only actuary there but this whole area is one which is core to actuaries. We have to make sure, through RTLC or other channels, that we are taking account of what is going on elsewhere and then trying to feed in rather than just saying we are going to be in a silo of doing our own thing.

My second example is that the head of statistics at one of our universities has asked me “Why are actuaries not using all the latest statistical developments when they are doing their valuations in terms of plugging gaps in data, etc.?” I think that this is a big issue which I am not sure I have seen in the *BAJ* or other research that is being produced. To me it is absolutely critical that there is a process that allows actuaries to keep up to speed with developments elsewhere.

We should not just commission research where we are the thought leaders, we should also be humble and work with others to understand what is going on elsewhere so that we can improve what we are doing.

Mr M. J. Clark, F.I.A.: One of the things that has slightly worried me is that, as someone involved in business, my research is about what my clients want 3–5 years out. Picking up the previous point, I am much more in favour of sharing external perspectives within the profession subject to subsequent dissemination. I escaped to the edge of the profession at a very tender age. I think most of

the things I have learned were from outside the profession. For most of my nearly 40 years post qualification I have not found the profession providing, if you like, the intellectual capital that I needed to absorb to do my job.

For example, I was kindly asked to represent the profession on the University of Oxford Smith School Stranded Assets Program. I am on the advisory panel and we have just produced a piece of work about whether investment consultants are a barrier to green investment. The conclusion is broadly “yes” and the subtitle is stranded advice risk. I think that there are plenty of challenges out there.

Another example was a recent conversation between me and the chairs of two boards. There was an article in Financial Times Fund Management (FTFM) and the view of the board chairs was that a published letter response was a good idea. When that was considered by the executive it was killed because there was no research underpinning the proposed comment. In my world, if I am in the press I am in the game. I do not have to say a lot and, over time, I shall learn more. I think that was an interesting observation from which we can learn.

Another example is that over 2 years ago I suggested that stranded assets could be a topic for the risk and investment conference. The message that came back to me was: “actuaries do not know anything about stranded assets, why would that be of interest to them?”. I found that quite an interesting observation. I am pleased that the view on not covering stranded assets was rescinded 12 months later because I did chair a session this year.

My point is that we must do the deep and narrow research, but broader and richer engagement with wherever our professional work takes us strikes me as possibly equally important, and it has certainly been useful to me.

Mr B. P. Ridsdale, F.F.A.: President, I welcome the chance to review the IFoA’s vision for research, promotion and dissemination in the future. I should like to talk about promotion and dissemination.

May I first congratulate the editors, the publishers, the authors and the profession on the quality and durability of the *BAJ*? It is an excellent resource for the profession. And may I also congratulate the RTLC, and the profession, on this consultation of the key questions for actuarial science.

I am a member of the International Actuarial Association (IAA) Mortality Working Group. One of our key objectives is to facilitate the sharing of mortality knowledge internationally. We aim to do this by collecting and disseminating research from both actuarial and non-actuarial sources. My role in this in the UK is to produce a half-yearly update on research in mortality and longevity in the UK, and I am grateful to many people here for help in doing this. I circulate the research to interested parties in the UK and I am happy to add new names to the list, and I am delighted that now my half-yearly report appears on the profession’s website.

I doubt whether it will surprise anybody here, but I can confirm that the UK is an international leader, if not the leader, in actuarial research on mortality and longevity.

But there is a problem. Not all countries are at the same level of development in actuarial research. And we in the IAA are aiming not only at professionals practising in mortality and longevity, but at researchers and students who wish to study the subject, and decision-makers and others with an interest.

The problem is that we in the UK firewall some of our finest work which is published in the *BAJ* and the *AAS*. We even firewall some of the reports of our discussions at actuarial meetings. I appreciate that it is not a simple issue. But I would ask that if we are going to invest in future research, we reconsider also our investment in communication to wider audiences. We need to communicate to non-actuaries who do not have access to Athens and members of our international audience who may neither have access to Athens nor the ability to splash out £20 for a single paper.

So question 1 is: can we open up our research to the general reader?

There are two ways one can promote and disseminate: push and pull. Push, telling people what we do and, pull, being there when they want to know. A simple and effective way nowadays of “being there” is to have a presence on the web.

Imagine you are a journalist, an MP, a medical professional or a researcher interested in “where is the expertise in the UK on mortality?” and you search Google for “mortality”.

There is only one hit on the UK actuarial profession’s website in the first hundred entries. That is way lower than it would have been five or 10 years ago.

Our “shop window” is our website. If you could find what you wanted using the “search” facility, please tell me. I have never found it. One of the things that we do on the IAA Information Base is to list papers of interest to our international audience under subject headings. It is not nearly as clever as David’s concept. We put up subject headings: “Mortality by socio-economics”; “Mortality by cause”; “Projections”; and so on. Then we put papers we think would interest our international audience under the appropriate subject heading; title, maybe a little bit of information about it, and a hyperlink. A hyperlink just makes it easy for somebody coming in from outside. But on the IFoA website papers are moved and links are broken.

So question 2 is: How can we make the wealth of knowledge on our website accessible?

The UK actuarial profession’s largest single research project is the CMI. It is truly a world leader. The CMI Joint Committee was formed in 1923. We should be incredibly proud of it.

I know from my time as chairman of the CMI over the busy and productive period of 2003–2006 the immense amount of work that is done by actuarial volunteers totally in the interests of the profession. As we know, since 2013, the work is available only to subscribers.

I fully understand the need of the CMI to pay its way by limiting its new research to paying customers and approved academics. But I am thinking particularly about the international context. Some years back, when I presented about the CMI, a Japanese actuary came and said: “I have used your projection method on the Japanese population, and on this, and on that. It was great”. The CMI library of mortality projections, the CMI mortality projections model and its working papers, could be of real interest and benefit to developing countries and others with an interest in research as to how things should be done.

So question 3 is: can we not find a way of releasing a “CMI lite” that gives summaries of the research and maybe releases data a bit later when it is not of such value to the subscribers, just so that we can keep people in touch with developments in the UK in the CMI?

We are discussing “the IFOA’s vision for research, promotion and dissemination in the future”. I can summarise my three questions in one question: “who is the audience to whom we are going to promote and disseminate our research work?”. If it is actuaries in the UK, perhaps we are doing the right thing. If it is journalists, decision-makers, other professionals, and actuaries and others throughout the world, could we develop a vision for promotion and dissemination to them?

Mr A. J. Toole: I should like to add to what Brian Risdale said which was essentially similar to the President’s initial comments. We should not be talking about to whom we are disseminating or how we are disseminating information, but the style of dissemination.

Everyone in this room is professional and intelligent. But we should not necessarily let those attributes blind us to the fact that sometimes there are more simple marketing business methods that are the right way to talk about things. I am going to go back to before I was an actuary when I was an IFA. I soon realised that the way to talk to people was to talk to people about what they wanted. People that I talked to did not want a mortgage, they wanted a new house. People did not want life insurance, they wanted to look after their widow and their orphans. Perhaps there are ways of projecting what we are trying to say that are different to the way we currently are saying it in order to encourage new audiences to be interested in what we are saying to them.

Dr Cooper: I have been feeling uncomfortable about the CMI because I sit on its executive committee as well as being on one of its working committees. I know that we are conscious of the position in which we **have got ourselves**. It is partly to do with funding and how the CMI can provide value to its subscribers. It is not paid for by the profession but by consultancies and insurance companies who also submit data. They are quite a hard audience to please, particularly when you are want them both to give you money and to extract a lot of intellectual capital from them. That probably drove the current model.

We are very conscious that the model is not going to work as well as we hoped it would. In particular, a lot of the work we did previously benefited from criticism, comment and review by people who had not been engaged in the work, so it was obtaining external oversight, which is one of the things that the RTLC is very keen to obtain. Of course, by putting everything behind a firewall, although we can still get very useful criticism and comments and views from our subscribers, nonetheless, we are addressing a closed group. Consequently, the work is not necessarily seen by people working in demography or mortality studies who are outside of those who would normally subscribe to us.

It is on our agenda to review what we give access to. I obviously cannot speak on behalf of the executive committee, but I will certainly report back what I have heard today. I hope very much that we strike a balance where, perhaps, the deliverables that are critical to the work being done by our subscribers are still behind the firewall. Those would probably be mortality tables. Everything else relating to our deliberations such as the work we do in developing the tables, the models we are using, the explanations that we are giving and the work that we are doing to make us produce better mortality tables, is put out into the public domain. So people can understand the models but might not actually be able to use the output. I think that might strike a balance between the very real concerns that I hear around the table and the concern of our subscribers who want to get a bit of bang for their buck.

Dr L. M. Pryor, F.I.A.: Well done everybody for 20 years of *BAJ*! I think it is important to recognise though that in many ways the *BAJ* is a journal of record rather than a dissemination medium.

In addition, as has been pointed out, it may actually be less effective than it should be as a journal of record if there are many people to whom the record is not available.

I think one of the big functions of the research carried out, or sponsored by, or connected to the IFoA, is to enable all actuaries, whatever their practice area, to find out what is going on both in other practice areas and in the world outside the profession.

As a member of the very new practice area of resource and environment (R&E) one of our prime interests is to ensure that other actuaries in the more traditional practice areas realise how important resource and environment issues are now and, even more how important they are going to become to them in the future. R&E issues are going to affect pensions, life and general insurance actuaries.

We have commissioned, with the help of the RTLC, or its previous incarnation, good research on this area. We need to think very carefully about how the dissemination side works so that it is not just actuaries who have registered an interest in R&E issues who learn about the research that has been done. One cannot rely on people to know in advance what is going to be interesting and relevant to them.

I think that one of the things we have to think about in the profession as a whole is how do we place the really interesting and valuable work done by sponsored research, or by working parties, in front of member? How do we make horses drink when they do not realise that they need to?

Mr T. J. Birse, F.I.A.: I think that there are probably three types of ways we can disseminate research, and they fit into the three groups of people who might be interested in the research. The *BAJ* is one of those. I think that what has appeared in the *BAJ*, and the *JIA* before it, and at conferences have been presentations on possibly three levels.

There are the headline grabbers, something which is short, perhaps two to four pages, designed to catch the eye of people where the topic may not be their main field of work, who may not have thought it would be interesting.

At the other extreme there is the detailed research which can be very numerical and contain model details and other technical material, which clearly interest a number of people.

Then there is a vast swathe in the middle who are the sort of people about whom I think Louise Pryor was talking. These are the bulk of members of the profession who want something between the two. They would appreciate a fairly learned, well-argued case with some supporting evidence but not 56 pages of numbers. To my mind, that is the sort of level at which the *BAJ* should be aiming. That does move it slightly away from a publication of record, where a discussion document may include loads and loads of figures, into something which is slightly different.

Mr Clark: I have four recommendations which the discussion has so far provoked. The first one relates to charges for attendance at meetings. When I arranged a stranded assets meeting and invited some of my non-actuarial friends to come, I was horrified to find the profession charged them £25 to attend. I negotiated a deal with the executive where they paid for the first three and then I was willing to pay the rest. I think if you are making friends and influencing people, I know of no walk in my professional life where I charge people with whom I would like to have a conversation.

Second, the question was asked about learned society or funding body. My response is that both sound very good. If we are trying to extend our reach then we are a funding body. We want stuff done. But actually as a learned society we probably want people to do things who are not within the profession.

I commend the idea of having discussions before the RTALC projects continue. With the greatest respect to Deborah, I was a member of a formal professional meeting and the view of the research Request for Proposal was that it was a bit of a wish list and it was not clear what were the desired outcomes. So, as the proposals come in, massaging those into the outcomes the profession actually would like seems a jolly good front end to that process. So I commend that proposal.

The final recommendation is to speed up the way with which real client issues can be developed. A year ago at a meeting where I was representing my employer but also the profession, a pension scheme executive came up to me and said “We have managed environmental risks in our pension fund for about 8 years. We have asked our scheme actuary to talk about how that might be integrated into the scheme valuation. Would you have a conversation which is nothing to do with your firm but to do with the profession?”. I said “Yes”. I have promoted discussing that sort of question within the profession, but I think that after a year it is only just about getting to the pensions people. So my fourth recommendation is an acceleration of discussion of the questions that our leading clients are asking.

Prof Wilkie: Two things come to my mind as a result of the discussion. First, I would like to comment on the comments, particularly from Tim Birse, about the different types of publication. I have certainly felt for a while that when I do research I use statistical and mathematical ideas which serious statisticians have produced and I do not worry about explaining how they have proved those ideas. But in the papers that I write, I tend to be lengthy and perhaps pedantic at explaining carefully what I have done in producing certain results. It requires someone else to do the next stage of translation from my detailed story to something that skips the proofs or the evidence and gives the results and how you use it. It then may require yet another person with different skills to write the headlines. There is a whole string of different people involved. One could take important papers from the *BAJ* and see whether somebody could write not a short two-page summary but maybe a ten-page explanation of the paper without explaining all the background.

A second thought is that, in my experience at least, research gets done when there is a practical problem, and not one that needs solving by next week. When I was research actuary of a company, the Chief Executive came to me once and said “Could you do such and such a thing?” I said “Yes. I can gather the data and give some results. It will take a few months”. The reply was “Oh no, I want the results next week”. I said “Okay. You can get the results off the top of your head as well as I can in a week. But if you want me to do it, I will study it and give you the answers so when you come to the same question next time I have the answer”. He said “Do not bother about that at all”. And a year later we had exactly the same conversation!

Going back quite a long time, insurance companies started writing unit-linked policies in the 1960s. With the crash in the stock market in 1974 they noticed that guarantees had been written into the contracts. Of course the sales people know that share prices only ever go upwards. So the saying “guaranteed to get your money back” is absolutely no trouble to write in, since it will never apply! Sidney Benjamin was the person who picked that up first.

Then we set up the Maturity Guarantees Working Party because we needed to find a method that insurance companies could use for assessing their risks. Comments and discussions led on to my producing my more elaborate model, with the purpose that insurance companies or pension funds could have a statistical model that they could use.

On the mortality side, the CMI has always periodically needed to do a mortality graduation or to analyse the sickness data or critical illness data. One needs to think of a way of possibly improving the analysis. If it were a mortality graduation you could do it just the way it had been done before by a smoothing formula or something like that. Once one had computers and could use maximum likelihood estimation, then different possibilities opened up. Again, there was the practical problem of producing a reasonably up-to-date life table, or whatever. So the extra research goes into that.

A little snippet: one of the most interesting bits of research and invention that I have noticed is in Book 1 of Ptolemy's *Almagest*, written about 150 AD. He wanted to be able to calculate what we now call the sines of angles long before the Indians did. He invented trigonometry and calculated a table of sines of angles because he needed it. He had ten pages of brilliant exposition of something which was totally new. Newton, presumably with his calculus, was doing the same.

So there is often a challenge, a practical challenge, which needs a new research solution.

Mr Smith: I will pick up a couple of things. Llanwarne has highlighted the importance of communicating uncertainty. We are aware that there is a lot of work going on outside the actuarial profession, and also a lot of work inside the actuarial profession. Sometimes we approach uncertainty communication with a list of limitations and exclusions.

It is quite difficult for somebody else to look at a list of assumptions and figure out which are really important. Somebody will say "Instead of giving me 200 pages of disclaimers, just tell me about the key assumptions". Unfortunately, it is very difficult to know at the time what are the key assumptions. Researchers are now looking at models that David built 20–30 years ago. They are still obtaining new insights as to what the model is really assuming. The difficulty of summarising limitations in a small number of assumptions leaves us a hostage to fortune because if we produce statements such as "There is a one-in-200 chance that the amount of loss will be greater than a certain amount", then we all know that such claims are subject to many assumptions, not all of which will be correct.

What I suspect will happen is that those one-in-200 events will crop up every 2 or 3 years or so. It will become increasingly embarrassing and our defence might be "Well, I said in my set of assumptions that sigma was 0.2. It turns out to be 0.5. Therefore all bets are off, as we all agreed to assume it was 0.2". It is early days of our one-in-200 solvency regime. It might take thousands of years for us to be proved right but we could very quickly be proved wrong.

So I agree on the need for research, looking at better ways of communicating uncertainty. Actually, it is not just something that is research, it is also a professionalism issue because somebody who pretends they are a lot more certain than anybody informed could be, may find strong demand for their services. Some people will pay for certainty even if it is completely illusory. Look at the horoscope columns and how popular they are.

I would also like to comment on a theme which has come through in many of the contributions in this discussion. It is the fear of the effect that increasing commercialisation has on the nature of our

research. I agree with some other speakers that in a lot of what volunteers do, their motivation is for the good of the profession.

Recently, there has been some concern about the difficulty of accessing conference papers on the IFoA site even after the usual month's purdah has expired. Volunteers have realised how easy it would be for paywalls to start appearing and we are anxious to make sure that does not happen. Volunteering to write freely available research is different from volunteering so somebody else can privately make money out of what you have done. Paywalls ultimately undermine the motivation of the people who are providing the content for which you are trying to charge.

Clark talked about being embarrassed to charge somebody £25 to come along to an event. I think that point is very well made. Even modest charges can have an impact on the content of the research because if somebody is prepared to pay for it, it has to be all that they want to hear. So you end up with a distortion in the content.

We need to be very wary of going down that route. I believe our purpose as a learned society is best served by making our volunteer research free not only to members but to other researchers outside our profession.

[Note: Since the meeting on 21 September, the IFoA has relaunched its website with the conference paper archives now more easily accessible. We understand that the previous difficulties in accessing papers were due to technology issues in the migration rather than any attempt to introduce paywalls.]

Dr Cooper: I have just a few points on behalf of the RTLC. Initially, people raised points that we should not be inward-looking. That is exactly what the RTLC are trying to achieve by virtue of having these larger-sized projects in which we need to work with people who are already doing work in areas in which we are interested. It is absolutely our objective to work with people in different disciplines and fields and learn from them. We also hope they might learn a little from us as well.

Our objective is also that the outputs from all of the research that we are spending money on will be in the public domain. This includes the models, the tools, the development and the output. So, there will be no firewalls at least in respect of that part of the work. The IFoA is working on a new website and I would expect that ultimately some of the firewalls you can see existing will be broken down. That does seem to be the way of the future although without necessarily having advertisements. It is part of our quality assurance that material is put out in the public domain and we receive comments back. It addresses our public interest objective because we are seen to be doing things and we have view and opinions which we can actually produce very well and very effectively.

Mr Chamunorwa: I think the point that Brian Ridsdale made around how you make the content accessible and relevant to a diverse audience is important. In terms of geography, in a few years' time, we will have many more of our members outside of the UK than within the UK. Not everyone will be in London or in Edinburgh. So how do we bring them into the discussions?

One way which I think is worthwhile, which we at *The Actuary* magazine have started to do, is webinars. I note that Michael Clark was a panellist on one of them around carbon risk, and Andrew Smith on another around Solvency II. There was another one before that on non-traditional assets. The webinars are free for people to join. Wherever you are around the world you can either dial in or

access via the internet, and you can interact. You can ask questions and you can put together comments in real time. That is a really good way to be inclusive and to enable people, wherever they are, to come together, leveraging on technology.

The other good thing about the webinars is that the subjects cut across our practice areas. I do wonder whether, as a profession, we are sometimes too practice-area-specific.

The President: We have come to the end of the discussion tonight. I think the panellists have given us many points to takeaway. Brian Ridsdale won the pitch prize today for making the points about two-way communication and that the website should be our shop window. My theme is promotion. If we do not have a shop window, how can we promote what we are doing? I can assure you that these points have not been lost on Sarah Mathieson, who is at the head of the research function here at the IFoA.

I should like you, please, to join me in thanking our panel.