

Actuaries Institute Podcast

Title: 'What does climate change have to do with your retirement?'

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Guests: Rafal Chomik, Ramona Meyricke

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Introduction

Vanessa:

Hello. Welcome to the Actuaries Institute podcast and this introduction to an important piece of thought leadership that crosses over a few areas of actuarial practice, specifically climate change, life insurance, superannuation and retirement incomes. I'm Vanessa Beenders, Practice Excellence Advisor at the Actuaries Institute. Today, the Institute launched a dialogue paper called *The Impact of Climate Change on Mortality and Retirement Incomes in Australia*. This dialogue has been written by an actuary and an economist, an interesting combination, and they're both joining us today.

Ramona Meyricke is a senior actuary with 12 years' experience in superannuation and life insurance. Her work focuses on financial and enterprise risk management for life insurers, superannuation funds, and pension providers. She is a member of the Institute's Climate Change Working Group.

Rafal Chomik is a Senior Research Fellow at the Centre of Excellence in Population Ageing Research, located in the University of New South Wales Business School. Previously, he worked as an economic advisor for the British government and as a pension's economist at the OEACD. Welcome Ramona and Raf.

Rafal: Nice to be here.

Ramona: Thanks.

Vanessa: **So, first of all, let's begin and I'll ask this of both of you. What sparked your interest in doing this research and how did you come to collaborate on this work?**

Ramona: So, the background to this research goes back to last year when statements from ASIC and APRA on climate change got me thinking about what climate

change risk means for the financial sector. The first time climate change gained focus as a business issue was following ASIC comments that company directors who don't properly consider climate risks could be liable for breaching their duty of care and diligence.

Ramona:

Then, APRA stated that climate change is a material, foreseeable and actionable risk, and while there is uncertainty around the timeframes and the magnitude of its impacts, APRA has said this is no excuse for inaction. So, the Australian financial sector is shifting into action. For example, last year many banks, super funds and general insurers published climate-related financial disclosures under the TCFD, but no life insurers published, or health insurers published disclosures. And this reflects a broader gap in knowledge globally. Far less attention has been given to the life and health risks arising from climate change as has been given to the physical risks such as damage to property from natural disasters.

Ramona:

When we started to look at the life and health risks, what became clear very quickly is that climate change is going to lead to worse health outcomes for many people and shorter lives for many people in Australia, particularly the elderly who are most at risk. Now Raf and I had worked together at the ARC Centre for Excellence in Population Ageing Research and considered these issues on the elderly a lot, and so I pitched the idea to him.

Rafal:

And I'm glad you did. So, having done research in population ageing for a long time, I thought it'd be really interesting to explore how these two mega trends interact, population ageing and climate change. You could, in fact, use superlatives to describe both of them that are similar. For example, population ageing has been described as unprecedented with no parallel in human history; pervasive because it's a global phenomenon affecting every country like climate change; enduring, will not return to younger populations that our ancestors knew; and profound, it's got implications for many facets of human life, the sorts of things that Ramona's just started talking about, so health and economy and public finance.

So, you put population ageing and climate change together and you may well have a perfect storm and that's what we wanted to explore.

Vanessa:

And perfectly said because it makes for a great paper. So, Ramona, I'll begin with you then. Climate change has many channels by which it can impact society and some of those you've already started to talk us through. In this Dialogue though, you focused on the heat related impacts. Why is that?

Ramona:

Firstly, because heatwaves have killed more Australians than any other natural disaster. There were 374 deaths attributed to the January 2009 heatwave in Victoria alone. And in the future heatwaves are expected to hit Australia more frequently and to last longer. Heatwaves are a silent killer, are not as newsworthy as a bushfire, and many people might not be as clear about just how dangerous extreme heat can be but it's really dangerous. Heatwaves can trigger heart attacks and strokes as our bodies really have to exert themselves trying to stay cool. There are also more subtle impacts of heatwaves, like increased workplace accidents and crime during heatwaves.

Ramona:

Secondly, the Actuaries climate index shows that extreme temperatures are already more frequent. The Actuaries climate index is based on historical data, but the scientific models projecting forward show that extreme heat is going to get even worse in the future. Particularly in the north of Australia. Darwin, for example, currently has about 11 days a year of heatwave conditions. But in 40 to 60 years' time, Darwin is expected to have heatwave conditions 135 days of the year. That is four months a year, basically nonstop December to March of extreme heat conditions.

Vanessa:

One of the things that I found particularly fascinating about the paper is that you've included a very strong evidence base, where you cite a lot of biomedical research. Can you tell us what you found in that research about the heat related impacts of climate change, in terms of who is that's most exposed?

Ramona: It is the elderly who are most at risk. Old age and other long-term health conditions, such as heart disease, can leave people less able to cope with the strain that heat puts on the body. Diabetes types one and two can make the body lose water more quickly, and some of the complications of diabetes can alter blood vessels and the ability to sweat.

Ramona: Australian Bureau of Statistics figures project that by 2050 the population of over 65s and over 85s will swell by about 90% and 170% respectively. This means just at the same time that heatwaves are becoming more frequent and lasting longer, there will be more elderly people in Australia. Managing this risk is a big problem for hospitals, for the health system, for age care, transport, and many other sectors of the economy.

Vanessa: **And there's a piece of jargon that you use in your report, and that's this expression 'excess mortality'. Can you just tell us what does excess mortality mean? What is that expression?**

Ramona: Excess mortality means the number of deaths in excess of what you would otherwise expect in normal conditions.

Rafal: So, one of the things is that when it comes to excess mortality, it's not that you record deaths from heat on the death register. What happens is you have to make estimates of excess death. And what gets recorded is things like cardiac arrest, because someone's body wasn't able to withstand some of the pressures that are put on it from the heat.

Vanessa: **So, in this paper you've looked at the potential heat related effects of climate change from three different perspectives. Firstly, from individuals. Secondly from life insurance, and pension providers, and I should also add super funds there, and then thirdly from government. So, let's explore those one by one. Ramona firstly let's talk through more about individuals. There are also some important financial effects that people could experience from climate change.**

What are those impacts? And how could they arise?

Ramona:

So, we've spoken about heat related impacts, but climate change could also significantly affect people's income, and the investment returns on their savings. Firstly, more frequent and more intense natural disasters could negatively impact individual savings. This would be particularly problematic if insurance premiums increase, because natural disasters are increasing, and this leads to levels of insurance dropping. When businesses and individuals are underinsured natural disasters can reduce employment and savings levels more so than when they have insurance, because savings are being diverted to disaster recovery and business disruption is worse and that can lead to unemployment.

Rafal:

That's right. So, in the paper we talk about those physical impacts on the economic infrastructure, as well as transition costs. So, there's already a global transition away from fossil fuels, public administrations in many countries, Australian States as well, aiming for net zero emissions. And that's unsurprising since renewables are cheaper than new build coal or gas plants. But it means that some industries will gain, and some industries will lose and that has employment and income shock effects. So, you see that in Australia, for example, in the Latrobe Valley, when Hazelwood closed unemployment shot up to about 8%. Two years later, the unemployment level has declined. But as people move into industries like health, for example, that unemployment decline is there, but yet the shock has been frozen in time via what happens in super because their savings may not necessarily recover from that loss.

Vanessa:

So, they didn't have the benefit of contributions to their superannuation for example while they were retraining for their new job?

Rafal:

That's right. So, you have these physical costs, and these transition costs, that affect employment income and therefore savings. But in other channel that we also looked at was via investment returns.

So, modelling from Mercer, a global investment consultancy, shows that under almost all future scenarios climate change has negative implications for investors who are not diversified at a total portfolio level to climate change. So, for example, if you weigh Mercer's industry level impact by the ASX market capitalisation, the climate warming scenario of two degrees could mean downward pressure on returns of about 70 basis points per annum in the long term. So, if people are invested with a manager who's not rebalancing portfolios to address climate change risk, their accumulations could actually suffer. So, you've got a number of different risks that could drive retirement income outcomes.

Vanessa:

And that's one of the great benefits, I must say. I think that we've paired here an actuary and an economist to do this work. And I've really enjoyed seeing that work come together. So, can you then Raf just talk us through what are the results of that illustrative scenario modelling if you like? What does that amount to in terms of reduced superannuation accumulation balances if you like, and what that means for retirement income?

Rafal:

Sure. So, we wanted to explore potential impact on retirement income of these two sources. The income risk from someone say losing employment from floods, droughts, or retrenchment and return risk if they're exposed to lower returns as they accumulate over their life cycle. We modelled individuals at different points in the earnings distribution over their life. The baseline comprised people on full time full career individuals and returns in line with standard ASIC assumptions. We then set up two different scenarios, one in which they experienced four episodes of unemployment, or non-employment over that 47-year career.

Vanessa:

And so that's equivalent to once a decade.

Rafal:

That's right

Vanessa:

Roughly

Rafal: That's right. And one where they get a return of one percentage point below that baseline, that standard ASIC assumption.

Vanessa: And that then connects back to the findings from that Mercer research that you just talked us through.

Rafal: That's right. I mean now the scenarios are probably at the worst-case end of the spectrum, but they help illustrate the relative scale of some of the impacts. So, what we found was that under these scenarios, a person on median full-time earnings, around 75,000 would see a super balance that is about 11 to 18% lower than the baseline. And if you include the age pension, retirement income is 2 to 5% lower than it is in the baseline.

Rafal: And so that's one of the interesting things about the modelling is that there's different effects depending on different points of the earnings distribution. Because the age pension acts as a hedge on retirement income risk, but lower down people already receive the full pension. At the top you can't offset all of their losses, because they might have quite substantial losses as a proportion of the age pension. So, it's interesting how it plays out in full.

Vanessa: Yeah, and the full results are in the paper then. So that's then about the individuals, but we should talk about the other perspectives that are explored in this paper. And so secondly then it's about life insurers, pension providers, and superannuation funds. Ramona what do you find in this research they should be thinking about? How does it impact them?

Ramona: So, for life insurers and pension providers a lot of the impacts will be on the asset side of the balance sheet, due to the investment return issues mentioned earlier. Any large asset holder really needs to be considering climate risk and making sure their portfolios are diversified to this risk. For life insurers on the other side of the balance sheet, there's liability risk, driven by the health and mortality risks, and the potential that we see higher

rates of death, but also higher rates of illness as a result of sustained extreme heat.

Vanessa: **So that then manifests in extra claims for them, wouldn't it?**

Ramona: Potentially, yes. This a long-term risk, so certainly we're not seeing that at the moment. These are long-term projections and I think it's in everyone's best interest - individuals, insurers, government - if this risk is managed. If these people don't die and we're reducing exposure, increasing public awareness of the dangers of extreme heat and how to protect yourself.

Vanessa: **And that's exactly the whole point of your research here, isn't it? What you're trying to do is a call to action if you like and as a society, we should decide whether that's something that we want the future to look like. You're painting a future scenario here. Is that right?**

Ramona: That's correct. We've taken scientific climate forecasts. We've reviewed the research on the likely economic and financial implications of climate change forecasts. And we've used our respective skillsets to say what that means in practical terms.

Rafal: And the other thing is that these are projections. So, we're kind of looking at what would happen if X happened, rather than sort of saying these are forecasts, and this is exactly what we expect.

Vanessa: **Yes. And the third perspective then is what the heat related impacts of climate change could mean for government. So, there's many potential impacts here. Let's explore what they are and are perhaps Raf, if you want to start addressing this please.**

Rafal: Sure. So, as I mentioned, the age pension offsets some of the losses that occur as part of the scenarios that we showed. So that's a cost to government, and it would affect budgets. We've estimated on individual basis rather than at aggregate level. So, for example, you're talking

about a net present value impact in today's price wage terms of between 20-30,000 extra pension for the median earner over the course of retirement, compared to the baseline. So that's not a trivial hit to the budget, depending on how many people are actually affected.

Vanessa: **So, 20 to 30,000 extra dollars per person for a median earner. Yes?**

Rafal: That's right

Ramona: The other thing I would add, going back to the impacts of extreme heat on government. State Governments are already increasing public awareness, and funding early warning systems. The Victorian Government did a lot in the aftermath of the 2009 heatwaves, including setting up early warning systems to alert the public of heatwaves, and investing in the emergency response capability of public health systems and infrastructure. Some critiques of what governments are doing, however, mention that the focus so far has been mainly on the emergency response side, and that not enough is being done on long- term prevention of harm during heatwaves. For example, improving building standards, and the thermal efficiency of people's homes, and public spaces could mean they're not reliant on air conditioning to stay cool, and therefore they're not exposed to heat.

Vanessa: **There's an incredible number of issues that you raise in this paper, in terms of the potential impacts of climate change on society. The paper is very much a focus on the financial impacts, because that's the skillset, as you've just mentioned earlier, that the two of you can bring to solving this problem. So, to wrap it up then, what do you think should happen in this space? Do you have any parting messages for our listeners?**

Ramona: Individuals, government, and society at large should be working to mitigate, and adapt to climate change. At every level we need to be acting with recognition of just how serious this problem is and acting to adapt to prevent harm.

Rafal: Yeah, I would just add that, you know, we're just putting this together in an exploratory discussion paper, and I think there's a lot more to unpack there. And it's also a call to people to consider the interaction between population ageing and climate change at the same time, and that it's not just individual specific trends that need to be looked at.

Vanessa: **Thanks, Raf and Ramona, let's hope that is the beginning of a very exciting increased research journey here that you are kicking off. So that's all that we have time for today. Thanks for joining us both Ramona and Raf, it's great to hear about your research, and your thoughts on what we can do to improve the society's response here.**

Rafal: Thank you.

Ramona: Thanks, Vanessa.

Vanessa: **So, listeners, we hope you enjoyed this discussion. Find out more about the dialogue paper by visiting the thought leadership section of the Actuaries Institute website. See the link in our show notes in the podcast's description. We'll also add in the show notes. As always, please write in with your questions and comments on the show. We love to hear from you. I'm Vanessa Beenders, bye for now.**