

South African Actuary

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Actuarial Practice in Namibia • Zimbabwe Actuarial Practice Turning a New Page • **Expanding Role of Actuarial Practice in Kenya** • Increasing Pension Coverage in SA • **Taking Actuarial Banking to the World**

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MICHAEL TICHAREVA

ACTUARIAL SOCIETY OF SOUTH AFRICA

This is the second SA Actuary publication under the new editorial team that took over towards the end of 2021. This edition, once again, does not disappoint as we look at actuarial practice on the rest of the African continent.

We have an interview with a prominent actuary of our times, Desmond Smith, a past President of ASSA and a past President of the IAA. Young actuaries can learn a great deal as they stand on the shoulders of giants like Desmond.

As is customary, we give you the Presidential perspective from the new ASSA President, Tjaart Esterhuyse, followed by an introduction of the new Council members.

We then cover a series of articles touching on a wide range of interesting issues of both actuarial and societal relevance, including articles on retirement fund and social security reforms.

Another article showcases the practical experiences of an actuarial veteran over a 40-year career in life assurance product development, capturing some interesting “actuarial innovations” of the past from which the actuarial profession can certainly learn.

We always include a book review section for our avid readers. This time Hannah Chivaka, one of the editorial team members and a card-carrying introvert, takes us through a review of “Quiet” by Susan Cain. This is a fascinating read that delves into the differences between introverts and extroverts, offering guidance on how introverts can play to their strengths in their careers and personal lives.

Then the thought of exotic cars as alternative investments is quite interesting, and one I might want to investigate personally.

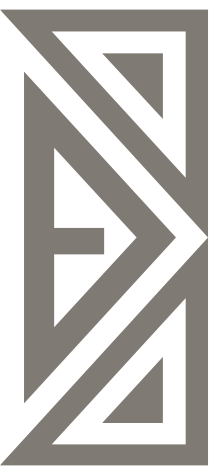
We trust you will enjoy reading this edition!

Michael Tichareva

Lead Editor, on behalf of the Editorial Team

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contribute to The SA Actuary**

PLEASE CLICK HERE



The SA Actuary, **A PRESIDENTIAL PERSPECTIVE**

TJAART ESTERHUYSE
President, 2022-23

This edition of the SA Actuary contains a number of very interesting, and also challenging contributions. The long standing issue of a National Social Security Fund comes to the fore again, after a Green Paper was published in August 2021. I cannot recall when this first came on the radar, and while Google most likely can assist my failing memory, it has popped up every few years. And reading through the two articles published here, I am not surprised that there has not been a resolution of this matter.

Retirement savings and the need to provide a safety net to the most vulnerable of society are very important to ensure poverty relief. But there are a number of very real practical and even philosophical difficulties in resolving this to everyone's satisfaction. The main barrier remains the means to cover the costs of this, as is explained in detail below. There is no doubt that there is a need, but whether there exists the means to provide a sufficiently broad coverage is debatable, notwithstanding the practical questions of encouraging or mandating participation, or administering such benefit schemes.

Both papers contain useful information and suggestions to these issues, and I certainly believe that as actuaries we can add considerable value in the eventual solution. That means we should be able to debate the advantages and disadvantages of the various solutions, and not cling to a particular one. Only through being open minded will we be able to resolve this. Such debate should include all stakeholders, including government, employers, labour and those not in formal employment. It certainly is a daunting task that needs to be given proper attention.

My reference to there being need for meaningful and respectful debate may become overbearing, but I believe it is most necessary to move matters like this forward through such informed debate.

Actuaries are not infallible, and insurance companies also need to provide value to their shareholders as they

cannot exist just to provide social good. But sometimes we take the need to grow and find profits (or ways to cover distribution costs) too far. This is clearly displayed in the case studies of an actuary that has 40 years of experience. I think most of us may have similar stories to relate, of lessons learned maybe a bit too late. It is easy to dismiss these attempts by insurance companies as cynical profit making schemes, but it often is a lot more complex than that, given that these businesses would not have existed nor thrived if it was not for their shareholders providing the capital needed.

Insurance products do serve a vital need to protect policyholders when disaster strikes. I am positive that we have learned a lot over the last 40 years of how we should behave and take policyholders' interests a lot more seriously. But yes, the industry also had to be prodded somewhat by our regulators who also have a very strong duty to protect the public. With ASSA's current focus on serving the public interest we are also much more aware of our own duty in this regard. I am very positive that we have and continue to learn from our mistakes of the past.

We also applaud the efforts of WeSolve4X to improve mathematics experience in disadvantaged schools and communities. A very ambitious project to wipe out student debt and fund future studies is also described. It is humbling to see how far just R100 a month from multiples of people can go to solve a very real problem. Whether all 45 million

people of ages 20 and above will be able to afford R100 is debatable, and actually deplorable, given South Africa's extreme unemployment, but even if only a fraction of us can start contributing we can make a difference. And that reminds me, the Actuarial Society Education Trust (ASET) provides support to the WeSolve4X Foundation, hence if you contribute generously to both ASET and the Wim Els Diversity Fund, you will support such efforts to make a difference. So I once again appeal to each of you to please do so.

Research has become a key focus of ASSA under Lusani's leadership and his role as Public Policy Actuary. This edition of the SA Actuary contains two very important pieces of work. The medical malpractice research done by Gregory Whittaker led to some very concerning results. The financial impact thereof is immense, and growing, further weakening an already depleted public health system. Practical solutions are on offer to manage that impact, and I commend the author of the article in this edition of the SA Actuary for further highlighting these. Let's hope we can reduce the strain on the health purse so that we can use that saving for improving the delivery in health care where it is needed most.

That also brings us to the research into the growing impact of non-communicable diseases, also a growing burden on the health care system, but more than that, the impact on people's lives and livelihoods are immense. This research may lead to a better understanding of that and drive suitable interventions to halt this trend.

I had some experience of working with actuaries in Namibia, and yes, I also found it to be immensely enjoyable and rewarding. While I have not had the pleasure of being a tourist there, at least my family are in the process of planning to spend some time there in July. I am looking forward to it, Carmen, and am pleased to see that the Society of Actuaries of Namibia is flourishing.

It's also good to see what the Actuarial Society of Kenya is all about, and not forgetting our neighbours in Zimbabwe, north of Limpopo! We can all learn so much about each other and what's happening in various parts of the actuarial world. It is also clear that we share many focus areas and challenges of actuarial practice on the continent. Acting in the public interest and being recognised as valued contributors to the financial wellbeing of our countries are important parts of our visions. I wish Sahib and his council all the best in the next phase of the Society's journey, to be formally recognised through the Actuaries Act as key contributors to Kenya's future will be a great achievement, and to Tafadzwa and his Council at the Actuarial Society of Zimbabwe.

And finally, an article that speaks directly to my heart. I am a confirmed petrol head, and even though I do not own a Ferrari GTO250, I'll have to make do with my 1968 MGC CT, my 1971 Kombi Camper and my 1977 Series III Landy. So yes, I buy into the concept that exotic cars can be an alternative investment, although I have to admit to mostly spending money on keeping my cars on the road. But it's not just about the investment part, it is also about driving a car that is fully mechanical, with no electronic interventions (except when the 50 year old wiring starts shorting...). You just feel much more part of the action, especially in my MGC, which feels fast because it's a smallish car. It has a 3l 6 cylinder engine in so it's not slow given it's age! And I still think it is a better looking car than the Bentley beside it!



The Austin Healey Sprite Mk2 shown here was my first classic car. I had to sell when my first child was born. It did not really allow for the safe placement of a car seat... And yes, that photo was taken many years ago!



I hope you enjoy reading this SA Actuary. I certainly did. It is great that we can produce a publication with such diverse articles. It shows our mettle and wider fields thinking. Just what African actuaries are known for! 🚗



DESMOND SMITH

“I hold every man a debtor to his profession, from the which, as men, of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves, by way of amends to be a help and ornament thereunto.”

Sir Francis Bacon

Indebted to my Profession:

BUILDING A LEGACY



by Maryvonne Palanduz (*Actuarial Society Operations and Finance Executive*)

Raised in rural South Africa, with most of his school going years spent in Indwe in the Eastern Cape (the then Transkei), Desmond speaks of the privilege he had to play golf on the local community golf course. Experiences that would chart his life, where he learnt to sharpen his game and be humble in his achievements. Qualities that are evident in his servant leadership from which he has built a legacy.

He starts off by sharing with me the relevance of **“how I didn’t come into the profession”** when Mr Tom Murray, an actuary from Old Mutual and Board member of Standard Bank, visited the communities in and around Indwe, as was expected of Board members at the time, and was hosted by his parents at their home. One of the guests mentioned that Desmond was good at maths. It did not take long for Mr Murray to track Desmond down in his room, at the foot of his bed, coaxing him to the profession. Soon thereafter a big brown envelope arrived from Mr Murray, complete with the bursary application. Much to Desmond’s amusement, the content was promptly destroyed by his father who favoured a career as a nuclear scientist for his son.

“How I got into the profession” was through a friend of his cousin. Charles Baillie, from Sanlam, had just returned from overseas. He was, at the time, studying towards becoming an actuary, while Desmond was still a university student at Stellenbosch, busy with a Bachelor of Science degree that he obtained Cum Laude in 1967. Charles Baillie piqued a curiosity in Desmond about the profession and created an interest that was the start of Desmond’s career in and through Sanlam as an actuary, a leader, and a faithful servant to the profession.

He started working at Sanlam in his early twenties as an actuarial student. The executive floor had an office reserved for the actuarial students to study. His peers duly informed him of the 'rules of engagement' on first entry to this room - an expectation to have tea with Dr Wassenaar, himself an actuary and the then General Manager of Sanlam, a legend of his time. As a dutiful student, Desmond presented himself to the secretary of Dr Wassenaar at the said time. Dr Wassenaar obliged and so, over a cup of tea, Desmond shared about himself and his passion for golf. Little did he know that his peers had set him up - there was no 'rule of engagement' that students should meet with Dr Wassenaar. Little did his peers know that they had set him up in his career.

Desmond was soon summoned to the office of Dr Wassenaar for an important matter: The Sanlam golf day against Parliament was fast approaching. Dr Wassenaar was in search of a partner to turn his fortunes around after the prior year's defeat. Desmond recalls being flabbergasted when pitching for the game to find that they had been matched with the then Prime Minister and Minister of Police as rivals for Dr Wassenaar and himself. They played well. They won the game. For a golfer this earns respect. Desmond was promptly set up to eagle his career.

He qualified as a Fellow of the Institute of Actuaries in 1973. Desmond has a vivid recollection of the quote from Sir Francis Beacon referenced at the ceremony in the Hall of Staple Inn at the Institute of Actuaries, quoted by Sir Frank Redington - as far as you gain from your profession, you are indebted to your profession ***"I hold every man a debtor to his profession"***. This simple phrase has been the burning torch and guiding light to Desmond in all that he is, and all that he does. Desmond got involved with the Actuarial Society of South Africa as early as 1974 assisting the Honorary Secretary and Honorary Treasurer on his return to South Africa.

Desmond recalls this time when a mere 3-4 actuaries qualified per year in South Africa. A time when employers of actuaries sent top-performing students abroad to prepare for their final examinations. A time when the Institute of Actuaries became more progressive in actuarial education providing two diets of examinations per year, a more modular qualifying pass requirement, and providing young aspiring fellows with much deliberation and debate in part-time tuition groups, led by qualified actuaries, dissecting topical papers. We ponder on this style of learning, where

Desmond smiles as he remembers Wim in his *"bottle-top-tie and pony-tailed-hair"* asking him for a job with a poem he composed during these proceedings. **Not long thereafter, Wim was appointed as the first employed staff member of the Actuarial Society of South Africa.**

respectful debate was nurtured and encouraged, where views were explored, and opinions won in a battle of bright minds and sound arguments in a professional environment.

Desmond rose through the ranks and went on to become the Managing Director of Sanlam in 1993. In 1996 he was elected as President of the Actuarial Society of South Africa. This same year he was summoned to meet the Standing Committee of Tax to Parliament in his capacity as Chair of the Life Offices Association (LOA), what we know now as the Association for Savings and Investment South Africa (ASISA). These meetings were gruelling and intense, often with opposing views, attended by the likes of prominent practitioners such as Michael Katz and Judge Dennis Davis. It was at the end of one of these marathon sessions that Desmond came to meet the late Wim Els, as secretariate to these proceedings. Desmond smiles as he remembers Wim in his *"bottle-top-tie and pony-tailed-hair"* asking him for a job with a poem he composed during these proceedings. Not long thereafter, Wim was appointed as the first employed staff member of the Actuarial Society of South Africa, supporting Council and Desmond in his presidential term, going on to serve the profession for just under twenty-five years.

It was during Desmond's term as President of ASSA in 1996 that the International Actuarial Association (IAA), an association of individual members, and the International Forum of Actuarial Associations (IFAA), an association of associations, agreed to restructure and merge. A merger Desmond believes is of historical interest given that it has stood the test of time, as represented by the current IAA structures and sections, representing associations and individual member interests respectively.

Fast forward almost a decade: In 2006, the International Actuarial Congress (ICA) was seeking a venue for the 2010 Congress. South Africa had just been awarded the 2010 Soccer World Cup. The mood was upbeat. The then President of ASSA, Joubert Ferreira, had just returned from an actuarial congress in Cancun, Mexico. Joubert convinced the ASSA Council that ASSA should bid for the 2010 ICA in Cape Town and asked Desmond to chair the bid and organising committee should they be successful.

Desmond exudes pride as he speaks of the brilliant committee of enthusiastic volunteers, their selection process, democratically elected, diverse, and representative of South Africa, supported by Wim Els, all hugely vested in making this a success. This team went big, modelling their bid on that of the World Cup, realising the transferability of what had just been done. The City of Cape Town became both a partner and a sponsor to the 2010 ICA bid. No stone was left unturned in setting the programme and creating a platform to showcase South Africa. At the IAA Council meeting held in Barcelona, the bid was unanimously awarded to ASSA as contenders withdrew, realising that they were up against a bid of national pride.

The 2010 ICA hosted in Cape Town received great accolades from peers far afield. It still holds the record for best-attended ICA more than a decade later. It is still singled out as the most prestigious ICA event ever. A record that spans more than a century. In 2011 Desmond received the Murray award on behalf of the Organising Committee of the 2010 ICA. The award was named after the same Mr Murray who introduced him first to the profession some fifty years ago.

In 2012 Desmond was elected as the first African President of the IAA. At the time ASSA held almost a quarter of the leadership roles at the IAA while representing only about two percent of the actuaries globally. ***“An amazing achievement that ASSA can make such a contribution, a contribution bestowed on leadership through confidence and recognition of international peers,”*** says Desmond. The time was ripe, and a raft of mutual recognition agreements were negotiated by the ASSA Council and concluded with the United Kingdom, Germany, The Netherlands, Canada, Australia, Ireland, and Europe. South African actuaries were now well respected and had access to global opportunities through these agreements.

Desmond shares that ***“this did not just happen by chance and luck”*** in an earnest tone. ***“It has come about through decades of hard-work and commitment by many actuaries.***

South African actuaries have taken seriously their indebtedness to their profession. This is a quality that we as members of the ASSA must treasure and nurture to maintain”. He goes on to share how the professional recognition of South African actuaries has benefited all. He quotes the recent progress made in ASSA’s banking fellowship offering. At the same time, he cautions that ***“the contribution you can make internationally, is dependent on your stature and standing locally. What you do every day, on the ground, and in your job matters. This must be the first and foremost priority for every member”.***

He speaks with despair when he says, ***“what takes a lifetime to build, can be destroyed in a blink”.*** He speaks from his gut around the importance of “holding each other accountable as peers of the profession”. For Desmond this is not about glib words, it is about ***“holding every man, a debtor to his profession”.***

Desmond had the privilege of serving as Chairman of the IAA nomination committee, as the immediate past president, in 2013. He was an early warrior promoting gender equality within the IAA leadership structures that was, at the time, a taboo topic amongst some predominantly male peers. It is with pride that Desmond reflects on the progress made in gender transformation in the profession, both locally and globally. The emergence of strong female leaders in the IAA (including 2020 president, Tonya Manning, and ASSA members, Roseanne Harris (2022 president) and Ashleigh Theophanides) is a testimony to his position. Many previous opponents have become ardent supporters of broader diversity in the IAA.

I ask him about his corporate career and get a humble response, despite its largeness: Appointed to the Board of Sanlam in 2009 and elected as Chairman in 2010 until his retirement in 2017. Desmond maintains ***“to not aspire to be better than someone else but be the best that you can be”*** as a guiding principle he lives by. He never aspired to hold the next role. He shares with sincere gratitude the importance of Sanlam in creating the platform for him to be involved in the profession, affording him these experiences and opportunities to be a debtor to his profession. He calls on employers of actuaries to do the same where they can. He reflects on his relationships at Sanlam being much more than just a place of work.

For Desmond, it is all about creating opportunities for people. Creating platforms for change. Empowering individuals. 



ACTUARIAL PRACTICE IN **NAMIBIA**

I recently overheard an American refer to Namibia as the **'Switzerland of Africa'**. It seemed to be an indication that this was a good place to be sent to if you are part of the American diplomatic corps. A number of people have a 'soft spot' for our country and I am often pleasantly surprised to hear the fondness with which South Africans speak of Namibia. This love for our country has frequently garnered much favour and support for us.

An example of this is the support that the Society of Actuaries of Namibia (SAN) has enjoyed from the South African based actuaries that do business in Namibia and have joined our ranks since our establishment in 2012. Membership of SAN is not compulsory for actuaries operating in Namibia, yet a number have chosen to join our Society, serve on our Executive Committee and volunteer for the various projects that we have participated in. (They account for 24 of our 44 members!) The Actuarial Society of South Africa (ASSA) has also readily assisted SAN.

Our economy is much smaller than that of South Africa but is, in some respects, just as complex. Most of the financial products that are available in South Africa are also available here – albeit a less diverse range. Due to our historic ties with South Africa and low number of local actuaries, we tend to rely on our South African peers for assistance with technical matters. Of late, however, due to our legislation diverging more and more from that of South Africa, we have been experiencing that our South African peers tend to rely on us to help them to understand how things work in Namibia.

One of the most significant recent developments in the Namibian financial market has been the introduction of the Financial Institutions and Markets Act (FIMA). FIMA, which was promulgated on the 1st of October 2021, that will replace all existing legislation relating to short-and long-term insurance, retirement funds, medical aid schemes and asset management – essentially all non-banking financial institutions. The introduction of FIMA is in keeping with worldwide trends (i.e. risk-based as

opposed to compliance supervision, forward-looking and outcome-based rather than performance-based). FIMA also provides the Namibian Financial Institutions Authority (NAMFISA) with significantly broader powers than it currently holds as the regulator.

Although FIMA was enacted four months ago, it will only come into force on the 1st of October 2022. This is to provide the Ministry of Finance and NAMFISA with sufficient time to draft and consult with the industry on the ‘critical’ regulations and standards that FIMA refers to. FIMA regulations and standards are available on NAMFISA’s website and the industry was given the opportunity to provide input on these until the 28th of February 2022.

During the past year, SAN members have been contributing to discussions relating to the FIMA regulations and standards at forums hosted by various industry bodies, such as the Retirement Fund Institute of Namibia (RFIN) and the Namibian Savings and Investment Association (NaSIA), as well as through their employers. NAMFISA has also reached out to SAN for assistance in drafting insurance and medical aid standards. A SAN working group also collaborated on the development of a White Paper on the impact that FIMA is expected to have on the local actuarial profession. The key concerns highlighted in the White Paper are FIMA’s inflexible requirements concerning independence and the relatively harsh penalties imposed for administrative infractions.

Working as an actuary in Namibia generally requires that you become a ‘Jack or Jill of all trades’. There is a diverse range of issues that you are faced with on any one day. This can be somewhat daunting as well as exciting. Since it is practically impossible to be a specialist in numerous fields, we are always grateful to have highly capable technical specialists within our SAN and ASSA network that we can rely on to assist us. If you have a ‘soft spot’ for Namibia and would like to be part of SAN, please do contact us as soon as possible! 📞

CARMEN FORSTER

President of the Society of Actuaries of Namibia

WORKING AS AN ACTUARY IN NAMIBIA GENERALLY REQUIRES THAT YOU BECOME A ‘JACK OR JILL OF ALL TRADES’. THERE IS A DIVERSE RANGE OF ISSUES THAT YOU ARE FACED WITH ON ANY ONE DAY.

BLESSING MBUKUDE

SHARES HIS EXPERIENCES OF WORKING AS AN ACTUARY IN ZIMBABWE AND NAMIBIA

The actuarial profession is one of the world's most prestigious, and especially so in the southern African nations of Zimbabwe and Namibia, where there are only a very small number of qualified actuaries. Due to this scarcity, qualifiers are accorded much respect.

Many Zimbabwean actuaries qualify and work abroad. Until recently, only one university in the country offered actuarial science as an undergraduate degree, and there was nothing at postgraduate level. This has changed during the past two years, with more universities now offering the programme and more students competing for opportunities – which are not growing as fast. Namibia, meanwhile, is highly dependent on South Africa for talent, as there is no actuarial programme offered by the universities there.

Having qualified in Zimbabwe and recently moved to Namibia, I can see parallels between the two countries. One significant parallel is that both are currently implementing risk-based supervisory frameworks: the Zimbabwe Integrated Capital and Risk Programme, and Namibia's Financial Institutions and Markets Act. These borrow concepts from both Europe's Solvency II and South Africa's Solvency Assessment and Management framework. The Actuarial Society of Zimbabwe and the Society of Actuaries of Namibia are very active in lobbying the regulator on these policy changes, and the societies create very close-knit actuarial communities. It's amazing to be at the forefront of this transformation.

Unique opportunities

Zimbabwe's pension and life industry is not as prominent as it once was, and is certainly not as prominent as it is in developed countries. Every actuary who has worked in Zimbabwe during the past 20 years will speak of the unique opportunities there. When I started my career, the economy was experiencing eight-digit inflation; we were working on assets that had 35 zeros on them. A dollar in premiums received on the first of the month would grow (on the stock market) to be enough to pay expenses worth a million dollars by the 30th of the month. Traditional models were

rendered useless, and we had to invent new methods. The impact of this period is still a hot topic within our actuarial communities. The country went through a second bout of hyperinflation in 2019.

Despite the well-documented negative effects of hyperinflation, some positives did emerge – for example, borrowing. Imagine borrowing US\$100,000 to purchase your first home, only to watch that borrowed amount fall in value to less than US\$1,000 in just two years. You clear the mortgage with your monthly salary and go back to the bank to borrow again.

Aside from the economy, my personal experience has been unique in so many ways. By the time I qualified, I had worked in pensions, life, general insurance and health, and had been actively involved in setting up two insurance companies from scratch, starting with a core team of five people. I was single-handedly responsible for product development, underwriting, actuarial and reinsurance. Three years after its launch, the company was insuring more than three million individual lives, and I replicated the same responsibility when we launched a general insurance company. When you work in a country with a smaller talent pool, specialisation is a luxury you cannot afford. This presents interesting and unique opportunities.

Small city living

There is another perk of living in a city the size of Harare, the capital of Zimbabwe, or Windhoek, the capital of Namibia: commuting. My home in Windhoek is exactly eight minutes from my office, and I live outside the central business district, in the suburbs. My commute is so traffic-free that there is no difference in peak periods. This all comes with the perks of a big city, such as clean water, proper sanitation, functional banking and reliable transport systems – and you get to eat the best beef in the world! 🍖

BLESSING MBUKUDE is the actuary for NAMFISA, Namibia's non-banking financial institutions regulator

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ZIMBABWE ACTUARIAL PRACTICE

TURNING A NEW PAGE

The Actuarial Society of Zimbabwe (ASZ) was established in the 1990s as one of the initiatives of the then Institute of Actuaries, UK, to reach out to the global actuarial community at the time. There was also great influence from institutions such as Old Mutual and First Mutual that were using actuarial professionals at the time and the Actuarial Society of South Africa (ASSA) that had a sizeable membership.

THE PROFESSION HAS ALSO WITNESSED SEVERAL KEY APPOINTMENTS OF ZIMBABWEAN ACTUARIES TO COUNCILS OF INTERNATIONAL ACTUARIAL BODIES INCLUDING THE ACTUARIAL SOCIETY OF SOUTH AFRICA (ASSA), AND THE IFOA.

Old Mutual Harare had a fully-fledged actuarial department in the 1990s in both pensions and life insurance practice. Old Mutual's influence in the development of the actuarial profession in Zimbabwe can, therefore, not be underestimated as they sponsored several successful programmes, and most Zimbabwean actuaries were trained through initiatives of either Old Mutual or First Mutual.

Other financial institutions later followed suit in employing and developing actuarial professionals. For example, First Mutual followed suit and matched Old Mutual's efforts in becoming a major consumer of actuarial services. Most of the senior actuarial professionals who would join First Mutual at the time would come from Old Mutual. These financial institutions continue to exert influence in the development of the actuarial profession even today, and the ASZ continues to engage and partner with them alongside other players. Other independent actuarial consulting companies in the 1990s included Pentact led by Mark Hyde and Watsons Wyatt led by Abednigo Sibanda at the time.

On the back of this, Zimbabwe has seen several developments around the actuarial profession over the past 10 to 15 years. This ranges from more Zimbabweans becoming qualified actuaries, to other notable changes in actuarial practice in the country. The profession has also witnessed several key appointments of Zimbabwean actuaries to Councils of international actuarial bodies including the Actuarial Society of South Africa (ASSA), and the IFoA.

It is estimated that Zimbabwean-born and educated qualified actuaries arguably number more than 100, while students still taking professional exams constitute an even bigger number with more than 500 students currently, and many new student members being added each year as they graduate from universities. Most of these members of the profession reside in different parts of the world, while a smaller but increasing number is resident in Zimbabwe.

In this article though, we delve into Actuarial Practice in Zimbabwe as a country.

INSURANCE AND PENSION REGULATORY DEVELOPMENTS

Since 2013, the Insurance and Pensions Commission (IPEC), the primary regulator of insurers and pension funds in Zimbabwe, pushed through several guidelines that saw enhanced actuarial involvement for regulated entities. From around 2016, actuaries started participating in non-life insurance work through product certification and annual actuarial valuations. Before this, actuaries were traditionally known to play a part in life and funeral assurers as well as pension work only.

In addition, a risk-based capital regime, dubbed Zimbabwe Integrated Capital and Risk Programme (ZICARP) was developed. This is a local equivalent of SAM/Solvency II, but fine-tuned for the scale of the Zimbabwean market. ZICARP is now at an advanced stage where insurers are participating in dry runs to assist in further refining the three pillars covering quantitative, qualitative, and disclosure aspects.

The pensions space has not been spared either, with several supervision and prudential governance aspects developed, including tightening of risk management and investment governance processes.

On the legislative front, the Zimbabwean government published three bills aimed at reforming the insurance and pensions industry. These are:

- *The Insurance and Pensions Commission Amendment Bill;*
- *The Insurance Bill; and*
- *The Pension Provident Funds Amendment Bill.*

All three Bills will soon enter the public consultation and promulgation stages.

Actuaries are playing a central role in supporting these regulatory and legislative developments. This presents great opportunities for actuaries to assist companies and pension funds with adapting to the new legislative framework. Currently, most regulatory guidelines require statutory actuarial sign-off. However, other areas, such as the development of risk management frameworks and governance practices, have other practitioners such as risk management professionals complementing actuarial practice.

FELLOW ACTUARIES PRACTICING IN THE ZIMBABWE MARKET

Locally based qualified actuaries are actively responding to market demands. Currently, there are around twenty locally-based fully qualified actuaries. Of these, ten are in the consultancy space while the remainder either head up actuarial functions within corporates, are in executive management, or directly work for the regulator. Many professionals in the local market are students, at least 300, at different stages with their board exams. These working students exclude university students who are expected to produce around 150 graduates per year from the two prominent universities offering actuarial degrees.

This new Zimbabwean atmosphere with enhanced regulations has caught the eye of actuaries from all walks of life. As opportunities become abundant, actuaries responded swiftly from other markets. Some insurers have regional and international offices. Such insurers are seconding their actuaries with experience from advanced jurisdictions to come in and assist with these refreshed demands by local regulation. One desirable feature from both the regulator and the Actuarial Society of Zimbabwe (ASZ) is that local companies opt for non-resident actuaries who belong to internationally recognised primary professional bodies. Most qualified actuaries, therefore, have the IFoA and ASSA qualifications with a few from Australia, India, the USA, and other equivalent bodies.

The involvement of non-resident actuaries has not been without its share of challenges. Most of these challenges stem from an observed limited understanding of the fickle Zimbabwean business environment. The business environment has seen economic turbulences leading to erosion of local currency, unstable inflation rates, and several government interventions aimed at ushering in

stability. Different government bodies have been issuing several circulars to this effect.

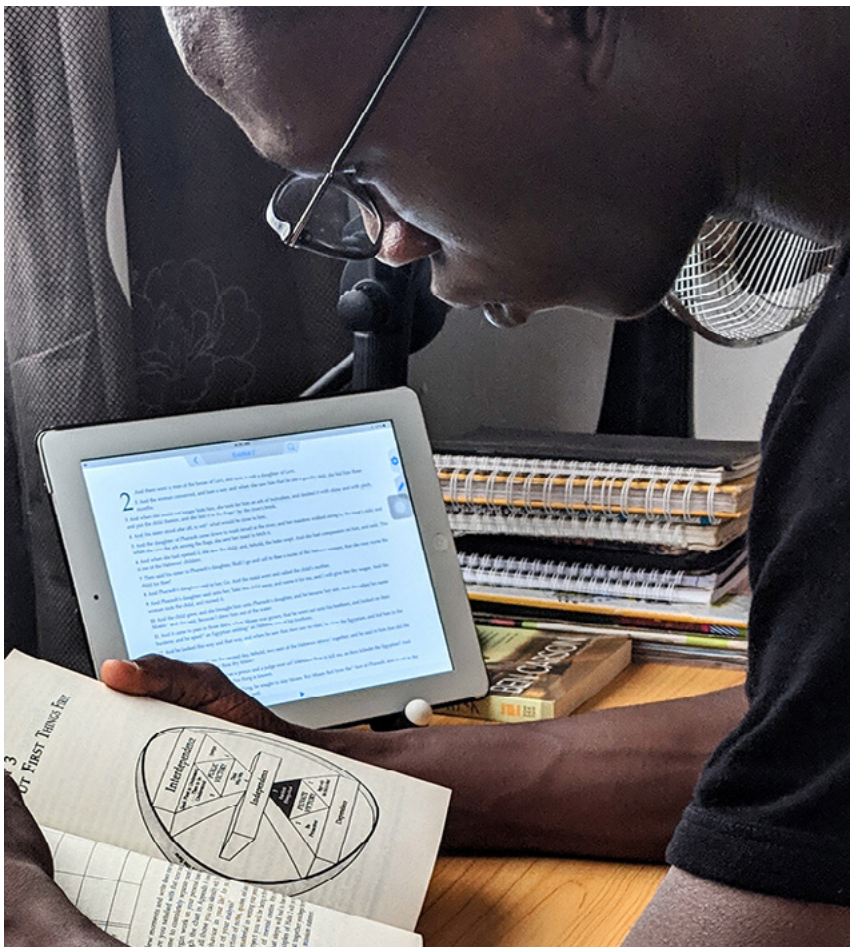
It is, therefore, generally recommended that, before practicing in such a market, a non-resident actuary first spends sufficient time understanding these environmental aspects. In some cases, what could make this easier is to consider partnering with resident actuaries, or better still, setting up a local office that is fully backed by an ever-growing number of actuarial students who could help in research. The Zimbabwean market could benefit immensely from knowledge and skills transfer when resident and non-resident actuaries are blended.

BEYOND TRADITIONAL AREAS OF ACTUARIAL WORK

Pensions, Life, and Non-Life actuarial work make up the traditional areas of actuarial practice in Zimbabwe. However, we have seen interest being generated in other areas. Actuaries are innovating and opening up new avenues of work. Over the past 3 - 5 years, there has been growth of actuarial involvement in the areas of Banking, Investments, Enterprise-wide Risk Management, Health & Care, and Data Science among others. This speaks to some key attributes of actuarial training that equip one with a toolkit to work in several areas where modelling and judgement skills are crucial. In this regard, we are at par with, if not ahead of, other emerging markets of actuarial practice on the rest of the African continent such as Kenya, Ghana and Nigeria. We hope to continue growing in these areas while maintaining high standards of professionalism as guided by our primary professional bodies.

ASZ ADAPTING TO THE EXCITING TIMES

The changing environment has pushed the Actuarial Society of Zimbabwe to up the ante around several aspects. IPEC, the local regulator, placed ASZ high up on its list of partners for local support in terms of supervision of actuarial practice. As a society, we grabbed this as a glorious opportunity to grow the profession locally. In the interim, the ASZ set up different workgroups that are looking into several regulatory and non-regulatory areas. For example, we have a special ZICARP workgroup composed of senior experienced actuaries who are assisting IPEC to refine the new Risk-Based Capital and



Governance Regime for insurers. A new committee has also been set up specifically looking at IFRS17 to support practicing actuaries to overcome local challenges around this upcoming financial reporting standard.

In addition, the society is also actively supporting student actuaries to speed up their qualification process. We have an education committee that arranges mock exam marking, exam coaching, and general advice around overcoming actuarial modules. We also recently entered into a Memorandum of Understanding (MoU) with ASSA that would widen opportunities for actuarial students sitting their exams with ASSA. This MoU could lead to local exams wholly outsourced to ASSA as early as second half of 2022, which should make it easier for our growing number of actuarial students coming out of university. We have also started the process to assist the major local universities to get accreditation of their actuarial programmes from ASSA so that students who meet the academic requirements can gain exemptions for some of their actuarial subjects.

ASZ has also been hosting annual conventions since 2015, covering different themes to improve the standing of the profession in the country. Of special note is the 2021 annual convention that was graced by the presence of Jan Kars, IAA's immediate past president, and Louise Pryor, the current IFoA president.

Furthermore, in 2021, we also carried out roadshows with other regional actuarial societies that are presumed to be at the same level of maturity as ASZ. We had fruitful engagements with The Actuarial Society of Kenya (TaSK), Actuarial Society of Ghana (ASG), Nigeria Actuarial Society (NAS) among others. One key takeaway is the anticipated collaboration around Continuous Professional Development (CPD) events to improve our standards of practice.

WHAT IS ON OUR TABLE GOING FORWARD AS ASZ

Over the next decade, we expect the growth of the profession in Zimbabwe to continue in logarithmic leaps. We excitedly look forward to the future based on these growth prospects. Among what we hope to achieve in the immediate future includes:

- *becoming a full member of the International Association of Actuaries (IAA),*
- *completing the development of our Actuaries Bill that has been drafted and undergone several reviews and awaits parliamentary presentations before being enacted into Law as a local Actuaries Act,*
- *developing a governance body to oversee enforcement of this proposed bill,*
- *developing local actuarial standards of practice,*
- *revamping our sessional meetings on pertinent areas affecting the profession locally*
- *actively promoting many local student actuaries to speed up their qualification process as we believe the demand for actuaries is accelerating.*

In all this, we hope to reach out to societies such as ASSA for assistance to smoothen our learning curve. 

TAFADZWA CHIDUZA

FIA, CERA, MSc., BCom (Hons.), ASSA member
ASZ President-Elect

MICHAEL TICHAREVA

FIA, FASSA, MBA, BCom (Hons.)
Fellow Member of ASZ

DEFINITE MUPAZVIRIWO

BCom (Hons.), Associate Member of IFoA
ASZ Secretary

A close-up, high-resolution image of the Kenyan flag, showing the red, white, green, and black stripes with the traditional Maasai spears and shields in the center. The flag is draped and folded, creating deep shadows and bright highlights that emphasize its texture. It occupies the top half of the page, set against a dark, textured background.

THE EXPANDING ROLE OF **ACTUARIAL PRACTICE IN KENYA**

The Actuarial Society of Kenya (TASK) was founded in 1993. The society brings together qualified and trainee actuaries in professional, educational and research organisations with the aim of promoting the actuarial profession, particularly in Kenya and the Eastern Africa region.

Currently, TASK has over 300 members, including 73 qualified actuaries, of which 13 are South African nationals. Kenya arguably boasts the largest number of qualified actuaries in Africa outside South Africa and the number continues to grow. One other country in Africa that we understand rivals Kenya in terms of qualified actuaries is Zimbabwe, although most Zimbabwean actuaries work outside their country.

Most members of TASK work in either insurance or consulting companies, and a fair number also work outside the country. The growth of the number of actuarial professionals in Kenya stems from the well-grounded education system with a number of universities now offering actuarial science undergraduate and master's degrees, led by the University of Nairobi and Strathmore University's Institute of Mathematical Sciences which have well established actuarial science programmes.

In December 2021, TASK held elections to elect a new Council after the term of the previous Council, with Moses Mutuli as President, came to an end. Sahib Singh Khosla became the President and Chair of the new Council for two years.

The Council, as previously led by Moses Mutuli, held four key strategic pillars to grow the profession in Kenya, and beyond. Those four pillars are illustrated below.

The four focus areas have been at the centre of the different projects initiated by TASK in the last three years, and are expected to remain key pillars for the profession into the future.

LINKS WITH OTHER PROFESSIONAL BODIES

TASK maintains close links with the Institute and Faculty of Actuaries of the UK (IFoA) where the majority of members obtain their globally recognised actuarial qualifications. The Actuarial Society of South Africa, the Society of Actuaries and the Casualty Actuarial Society, both of USA, are some other actuarial bodies with which TASK maintains close ties.

TASK has also supported initiatives by the local regulatory bodies and has maintained very strong relationships with the regulatory bodies. The Insurance Regulatory Authority (IRA) included a clause in the Insurance Act that requires practising actuaries in Kenya to be accredited by TASK.

The Association of Kenya Insurance (AKI) has also formed close ties with TASK, and has been seeking the profession's guidance on technical matters. TASK aims to seek Memoranda of Understanding (MoUs) with such bodies, including the Retirement Benefits Authority (RBA), so as to formalise their working relationships.

The Institute of Certified Public Accountants of Kenya (ICPAK) is one professional body that has, in recent times, sought the guidance of TASK on technical reporting matters. For example, the implementation of IFRS 9 in 2018 called for a close working relationship between ICPAK and TASK since the former required the skills of an actuary to model the impact of the new guidelines on a company's balance sheet. TASK and ICPAK continue to engage closely in anticipation of IFRS 17 in 2023.

PARTICIPATION OF TASK ON MATTERS OF PUBLIC INTEREST

The Actuary has a role to play in enlightening the public on key issues related to insurance, pension, risk management, modelling and so on. Covid-19 provided an excellent avenue for actuaries to showcase their modelling skills towards supporting the Government to make some well informed decisions in managing the consequences of the pandemic. In as much as TASK presented some views on a few areas, the episode informed us that there is a lot that actuaries can do to win public support. The area of actuarial research is one area that is least explored by qualified actuaries in Kenya but does provide an avenue through which actuaries can participate in supporting the government formulate some well thought-out policies.

TASK's role has mainly been to peer review and recommend best practice on areas of interest, mainly in the field of insurance and pensions. For example, when the IRA introduced the Risk-Based Framework in 2016, TASK reviewed the workings of the model and made recommendations that resulted in the refinement of the model to meet international standards.

TASK would want to have even greater involvement in the Kenyan Government policies, including the "Big 4 Agenda" of Food Security, Affordable Housing, Universal Health Care and Manufacturing & Job Creation. Already, TASK has formed committees, called Working Parties, that are challenged to address and provide opinions on the major items on the Big 4 Agenda.

THERE HAS BEEN A PROLIFERATION OF ACTUARIAL EDUCATION WHERE AT LEAST 25 UNIVERSITIES ARE KNOWN TO OFFER THE COURSE DESPITE THE LACK OF LECTURERS WITH AN ACTUARIAL BACKGROUND.

CHALLENGES FACED BY TASK

Although the role of an actuary is diverse enough to apply to any institution in Kenya, the public has not fully embraced the actuary's skills set. Their roles have been confined to insurance and pensions, whereas they possess some key financial and risk management skills that are applicable in many other areas. A major cause for the poor reception of the actuary by the public has been that the actuarial profession is not fully recognised in the statutory instruments of the Government. Hence, there is a need to seek Government recognition of the role of an actuary.

The interaction between TASK and other bodies, especially regulators, needs to be strengthened. There are policies formulated by regulators that strongly demand actuarial input. Without proper statutory recognition of the actuary, TASK will continue to be left out in such forums, which may result in industry failures.

There has been a proliferation of actuarial education where at least 25 universities are known to offer the course despite the lack of lecturers with an actuarial background. This would compare to universities in the UK or SA that have fewer universities offering actuarial studies. There is, therefore, a need for TASK to assess the credibility and integrity of the actuarial studies to ensure that high standards are maintained. This is being addressed by the Minimum Education Standards described later in this article.

WHY THE ACTUARIES ACT?

TASK is in the process of seeking statutory recognition as a credible professional body through the Actuaries Bill. Once the Bill is passed in parliament and becomes an Act, it is expected to address the challenges highlighted above in the following ways:

- 1** Regulatory bodies will seek TASK views, as a publicly recognised stakeholder as required by the Kenyan Constitution, when making amendments to current Acts or formulating new policies. This will enhance the quality of output and strengthen governance in the different industries in which actuaries participate.
- 2** The Actuaries Act will heighten public awareness of the role of an actuary, thereby increasing the demand for the quality and skilled resource of an actuary in different sectors of the economy. The Big 4 Agenda by the government, especially in the health sector, has not had much input from the actuarial profession, and this is largely because the profession is not recognised by the arms of Government as a "go-to" profession on such matters.
- 3** The Commission of University Education (CUE) in Kenya usually seeks guidance from statutory recognised professional bodies as it assesses the quality of university education for approval of courses offered. The Actuaries Act will provide the opportunity for TASK to have a say on the quality of actuarial education in Kenya through CUE.
- 4** The regional insurance and pensions regulators in Uganda, Tanzania, Rwanda and Burundi are currently reviewing and updating their guidelines to strengthen the governance structures of companies, particularly by emphasising the role of an actuary. Kenya has the most developed actuarial body in East Africa and is expected to be called upon to support the growth of the profession in the region. This will be supported by having an actuarial body that is recognised by the statutory arms of government.
- 5** The insurance industry has experienced numerous failures of companies as a result of poor management and a lack of professional management of these companies. Actuaries are well trained to understand the technical demands of an insurance company and,



once the Actuaries Act is passed, this will then enhance the growth of the profession and its members into the management of insurance companies.

- 6 Once TASK obtains the Actuaries Act to back it legally, the enhanced visibility & credibility may enable the Government to set up a Government Actuaries Department (GAD) as a state-run institution/think tank on policy matters, as is the case in many developed economies.

The Insurance Regulatory Authority (IRA) of Kenya is the main sponsor of the Bill. The support from, and partnership with IRA, is key given the role that actuaries play in ensuring the sustainability of the insurance industry in Kenya.

The Actuaries Bill is expected to be presented in Parliament for deliberations in the second half of 2022.

MINIMUM EDUCATION STANDARDS (MES)

TASK drafted the MES to forestall potential deterioration in the quality of standards of actuarial science courses in Kenyan universities and the likely risk to the reputation of the actuarial profession.

The intention was for the TASK Council to use these guidelines for accreditation of actuarial courses, in consultation with the Commission of University Education (CUE), to the applying institutions covering the following three areas:

- 1 Quality of Actuarial Students – prescribed minimum level of Mathematics and English scores.

- 2 Quality of Actuarial Trainers – prescribed minimum qualifications of actuarial trainers and their requirement to attain some desired CPD points.

- 3 Actuarial Curriculum – with support from the IAA curriculum.

Discussions with CUE are ongoing with the expectation that the standards will be implemented from 2022.

WHAT'S NEXT FOR THE PROFESSION IN KENYA?

The new TASK Council will forge its own path, building on the foundations laid by the previous Councils. Moses Mutuli continues to sit in the Council to ensure a smooth transition and, that some key foundational projects initiated previously are realised, in particular the Actuaries Act and the Minimum Education Standards.

The key area for consideration by the new Council is to grow the profession into wider fields and have actuaries actively participate on matters of national and public interest. The number of qualifying actuaries in Kenya continues to grow rapidly and it is, therefore, important that the role of an actuary goes beyond insurance and pensions. Instead, strategically placing the actuary as a go-to professional on matters of data science and risk management will enhance the marketability of the profession and eventually becomes a career of choice for the highly numerate students. 

MOSES MUTULI

Immediate Past President

The Actuarial Society of Kenya



IAA President ROSEANNE HARRIS



International Actuarial Association
Association Actuarielle Internationale

I WAS FIRST ASKED IF I WOULD CONSIDER STANDING FOR PRESIDENT IN 2019 AND IT TOOK SOME DEEP SEARCHING FOR THE STRENGTH AND CONFIDENCE TO TAKE ON SUCH A BIG ROLE.

HOW I CAME INTO THE PROFESSION

I have been an actuary for 26 years now which does seem to be quite a long time but I have to say that I really love my work. I always seem to have multiple jobs and right now I am health policy actuary at Discovery Health and teaching at Wits and also filling my role at the IAA while still being involved in ASSA. I do a lot of juggling because I enjoy all of these and find it very hard to say no!

In matric I had a bit of a crisis in decision making as I had been so determined to study law but also wanted to use my maths and science. I learnt about actuarial science through the career counselling unit at Wits and the more I read about it the more I realised that it was exactly what I wanted to do. The assessment had indicated that I should consider being in financial services or a teacher – ironically I am now working as an actuary in the policy space and teaching so combining all of that advice and my original plan! Fortunately I was awarded a bursary by Southern Life for my studies which helped me through my degree and also ensured I had a job afterwards – getting some vacation experience along the way.

CAREER HIGHLIGHTS

When I started work at Southern Life I was offered the opportunity to work with Ray Welham at the medical scheme administrator they had recently acquired. This was before actuaries were established in healthcare and initially I was in the marketing department. But we eventually established an actuarial department and started to really apply actuarial techniques to medical schemes. I finished my exams when I was still 24 and immediately had the opportunity to be part of the joint venture Southern had set up with United Healthcare to introduce managed care to South Africa. It was a steep learning curve and I attended their training course in Minneapolis (in freezing February 1996). But I found myself in a senior management position not doing the calculations but managing the underwriting staff and I was frustrated not to be able to be applying my actuarial tools. So I surprised myself and quit without a plan ... but the plan came together quite quickly and with the help of some good friends like Stephen Jurisich, I was able to put together some consulting assignments which then became my 20 years as an independent consulting actuary. I was so fortunate to have the flexibility to do a variety of things which included various consulting projects, research projects, volunteering for the profession and, most importantly, raising my daughters.

At the same time Anthony Asher had persuaded me to write a health course and then sucked me in to teaching it. And 24 years later I am still teaching at Wits. I find it so rewarding to work with the students and to see how my experiences can benefit them as they build their skills and careers.

In 2013 Peter Temple surprised me by suggesting I stand for ASSA president. This had not been in my plans but I was excited to make a contribution and so I became president elect for 2014-15 and president for 2016-17.

In early 2017 Emile Stipp suggested a strategic role at Discovery Health. It was a great opportunity to be able to contribute meaningfully to policy development and also to do the kind of research and analysis I was trying to fit in between consulting assignments. I have really enjoyed being part of the Discovery team especially the opportunity to contribute so meaningfully during the Covid-19 crisis.

And I cannot talk about career highlights without mentioning that my own daughter qualifying as an actuary was a real highlight for me!

HOW I BECAME INVOLVED IN THE IAA

My first exposure to the IAA was when I presented on the Vitality Insured Persons study at the Health Section event in Boston in 2008. I was part of the Wits team working in this analysis. It was really interesting to share this with other health actuaries looking at health risk in various ways in other countries.

I started attending IAA events representing ASSA in 2014 and my first event was the ICA in Washington which was really exciting. Under the wing of Desmond Smith I was hobnobbing with actuarial luminaries and it was really interesting and exciting. I joined a number of committees including health, social security and education and due to my inability to say no was involved in various projects.

I was first asked if I would consider standing for president in 2019 and it took some deep searching for the strength and confidence to take on such a big role. I was interviewed by the nominations committee in 2020 just after lockdown started and my election was confirmed in November 2020. I was president-elect in 2021 and worked on the officers team with Tonya Manning (USA) and Jan Kars (Netherlands) which was a great opportunity for me to make my plans and learn the ropes.

THE VALUE I GOT OUT OF THE IAA AND VALUE FOR ASSA BEING IN THE IAA

My role at the IAA has certainly enhanced my travel experiences – I have been to the USA, UK, Canada, Hungary, Switzerland, Mexico, the Netherlands, Spain and even Russia. What I have really enjoyed has been finding that we as South Africans can make a real contribution to global topics and that we can also benefit from hearing how challenges have been addressed in other countries. I also get to contribute to the development of the actuarial profession as we enter into other areas of work and ensure that the core principles of professionalism and public interest are upheld. I am really proud of the contribution the South African profession makes to the work of the IAA – in standard setting, education development and research and also in developing the profession's role in underserved regions and also in banking. But I also think that the global perspective guides us in our own challenges around topics like capital standards, microinsurance, climate risk and social security.

WE NEED TO BE ACTIVELY DRIVING ACCESSIBILITY OF RISK PROTECTION, PARTICULARLY GIVEN THE GAPS THAT THE PANDEMIC HAS HIGHLIGHTED AND THE INEQUALITIES EVIDENT ACROSS THE WORLD.



MY PLANS FOR MY PRESIDENCY.

There is no doubt that we are living through a time of unprecedented uncertainty and this is an important time for the actuarial profession to be making a positive contribution as we strive to understand, measure and manage the risks that we are facing as a planet. During my presidential term of the Actuarial Society of South Africa, I defined my themes as relevance, integrity and professionalism and noted that these were key to the survival of our profession. I am excited that I now have the opportunity to apply these themes at a global level. We are facing the massive challenges of post (and current) pandemic risk - what it means to live in a world with Covid-19 as an endemic feature and the protection gaps and inequalities that have been exposed. We are also grappling the risk and consequences associated with climate change and the urgent need to adapt to more sustainable ways. We need to ensure that the valuable contribution that the actuarial profession can make in understanding these risks and navigating our way through them is apparent to our key global stakeholders and the IAA has an important role in encouraging the application of actuarial thinking to these challenges and co-ordinating the excellent work being done by actuaries across the world.

Another area where the IAA has been doing excellent work is in climate risk and the work of the climate risk task force supports a central role for actuarial skills in measuring this risk and provisioning appropriately.

In terms of my intended organizational focus during my term there are two areas I'd like to highlight. The first is diversity and inclusion which is something I feel particularly strongly about. This important principle has been formally incorporated in our IAA values and I intend to take this forward. It is already top of mind in consideration of nominations and I hope to take this further in terms of not only who is participating in the IAA structures but also in how we apply ourselves in our actuarial roles. We need to be actively driving accessibility of risk protection, particularly given the gaps that the pandemic has highlighted and the inequalities evident across the world.

The other area of organisational focus I hope to work on is with respect to the sections. The IAA sections is how the IAA reaches individual actuaries around the world and I would like to take steps to ensure that there is better integration and collaboration with the sections so that we can both really harness the important work of the volunteers participating in the sections and also ensure that the role of the IAA in tackling matters of global significance is visible to the section members. 

NEW COUNCIL MEMBER PROFILES



MICHAEL TICHAREVA

Michael Tichareva is the Managing Director and Principal of National Standard Finance Africa (National Standard), having co-founded and formalised the operations in 2014. He is also the Executive Chairman of Claxon Actuaries.

At National Standard, Michael is involved in the origination and structuring of sovereign, sub-sovereign and private sector infrastructure & real estate deals across Africa with a strong focus on developmental finance to improve quality of lives of people and is constantly involved in a number of such initiatives. Michael has recently been focusing on developing financing and insurance solutions to facilitate mining production, agricultural production as well as the associated commodities trading in mining and agricultural commodities in Africa given the richness of the continent in mining and agricultural resources that can be developed to improve the quality of lives of its people. Emphasis is on both primary production and value addition industries to process the raw commodities to create value for export. Michael has also been involved in renewable energy and low-cost housing development insurance and financing initiatives and continues to seek opportunities for involvement in these areas. This is effectively impact investing.

Michael has extensive relationships in both the public and private sectors in Africa and is responsible for building strategic networks and relationships in different parts of the World to progress National Standard's initiatives in Africa. Michael believes in developing solutions that are suitable for Africa within the global framework and he is currently leading initiatives that he believes will lead to accelerating Africa's infrastructure development so that Africa can compete sustainably in the global economy. One of the solutions involves promoting the increased use of



credit enhancement instruments in infrastructure finance in Africa, a structured finance solution that combines elements of banking and insurance solutions. Michael has performed coverage roles where he has been involved in deal origination and client relationship management since 2005 at Old Mutual and Nedbank in South Africa and currently at National Standard for the rest of Africa.

Michael worked as a senior banker at Nedbank, one of South Africa's largest banks, where he was involved in real estate finance deal origination and structuring as well as on-going client service and relationship management. In this role, he had exposure to both the Debt Capital Markets and the Equity Capital Markets, and he has extensive knowledge of investment banking products. He also served as a Trustee of the NedGroup Retirement Funds and was a member of the Investment Committee and the Communication Committee. He also served on the Management Committee of the NedGroup Disability Scheme. Michael served as Deputy Chair of the Employment Equity Forum of the Property Finance Division. Michael is an investment and banking professional who has worked in various senior roles within the UK at AON, South Africa at Alexander Forbes and Old Mutual, and Zimbabwe at Old Mutual for the past 23 years.

On actuarial practice at Claxon Actuaries, Michael is a banking actuary who leads a team of actuarial professionals at Claxon Actuaries in delivering banking consulting assignments that include, among others IFRS 9, expected credit loss modelling and credit scorecard development for banks. Michael continues to seek engagement in a

wide range of banking related assignments as he works to expand actuarial practice in banking. He currently leads at a global level in developing banking practice for actuaries and continues to present at various international platforms on the involvement of actuaries in banking practice. Michael is also involved in advising clients in general insurance, life insurance and investments having been exposed to all these areas in his working life.

Michael is a Fellow of the Actuarial Society of South Africa (FASSA) and of the Institute of Actuaries having qualified in 2004. He holds an Honours degree in Actuarial Science from National University of Science and Technology, Bulawayo, Zimbabwe (1999). Michael also holds an MBA from Wits Business School (South Africa) (2012) and attended some of his electives at Fuqua School of Business, Duke University (USA) (2010) majoring in Investment Banking and Finance related subjects. He did his MBA research project on a banking related subject entitled "Analysis of Risk Adjusted Performance Measures in a Property Finance Business" where he gained in depth understanding of banking risk management frameworks, risk adjusted performance measurement frameworks and the economic capital management of banking institutions.

Michael is a former member of Council of the Actuarial Society of South Africa from 2014 to 2017 and he is a former Chairperson of the Education Board of the Actuarial Society from 2016 to 2017. He is also a former Chairperson of the Banking Committee for the Actuarial Profession in South Africa, a position he held for 8 years to 31 December 2017. He holds other various roles within the Actuarial Society and has led a number of key initiatives over the past few years. Most notably, Michael led the development of the first ever banking qualifying subject for actuaries over a 5 year period that was finally launched by the Actuarial Society of South Africa in 2015. This banking initiative for actuarial practice, a first in the World, has received great international attention within the global actuarial profession, and now being offered jointly by the Actuarial Society of South Africa and the Institute and Faculty of Actuaries.

In support of the banking initiative, Michael has, in 2020, produced an International Handbook as summary notes for banking professionals available from the Actuarial Society of South Africa. Michael is the current Chairperson of the Banking Virtual Forum of the International Actuarial Association ("IAA") established in 2016 as the Banking Working Group. Michael has also been on the panel of external examiners of Actuarial Science Honours degree research projects at the University

of Pretoria in South Africa since 2012, and continues to lecture actuarial students taking the banking fellowship and investment fellowship subjects for the Actuarial Society of South Africa.

Last but not least, Michael was appointed by the Actuarial Society of South Africa in 2021 to spearhead the development of actuarial education on the Africa continent, an initiative that he is passionate about and that he believes will change the actuarial landscape in Africa.



MELUSI BALOYI

Melusi is a qualified actuary (FASSA) with more than 11 years' experience in the microinsurance, life insurance and reinsurance industry.

His passion is providing meaningful financial solutions to the African continent.

Melusi is the Managing Director of Xivoni Actuaries and Consultants, a pan-African firm that focuses on

actuarial consulting, data analytics and research as well as performance optimisation for entities in the private and public. Xivoni operates in South Africa as well as on the African continent.

Melusi is the Chairman of the ASSA Microinsurance Practice Area committee, sits on the NSFAS Board as a NED and is also an extra-ordinary lecturer at the University of Pretoria (UP) where he teaches F102/ST2 to the honours class.

Before co-founding the consulting practice, Melusi has worked in various roles as an actuary. He worked as the Chief Actuary for Munich Reinsurance Company of Africa. Before this he was a valuations and product development and pricing actuary at Liberty and Discovery. His first corporate role was actuarial consulting with Deloitte where he focused on valuations, reporting, audits and model building.



**KATLEHO PABALLO
MAKUPU**

Katleho Paballo Makupu prides herself in being an award-winning philanthropist, speaker, author and role model. She currently works as the Financial Solutions manager at Munich Re and is an experienced manager in the insurance and finance industry.

She is the Actuarial Women's Committee incoming head of the outreach program where she aims to

combat poverty through the following pillars: education, healthcare and agriculture.

Ultimately her passion lies in advancing the cause of women in leadership and being a role model to young professionals.



NABEELAH KOLIA

Nabeelah is a Senior Manager and qualified actuary working in the Life Insurance practice of Deloitte Actuarial and Insurance Solutions based in Cape Town. She has gained life insurance, healthcare insurance and other consultancy experience.

Being named one of the Mail & Guardian's Top 200 Young South Africans in 2021, Nabeelah is passionate about making a difference. She is the President of the Association of South African Black Actuarial Professionals (ASABA). She is also the immediate past Chair of the Actuarial Women's Committee (AWC) and the founder of the AWC Leadership Development Programme.

Nabeelah serves on the Life Assurance Committee (LAC) of ASSA, the Microinsurance Committee of ASSA, the transformation Committee of ASSA as well as the F202 mock exam committee.

When Nabeelah is not working or volunteering she is spending time with her family, travelling the world, and curling up with a good book. 📖



COSTA ECONOMOU

Costa Economou is the CEO and co-founder of liability-driven investment boutique Colourfield Liability Solutions, the first business of its kind in South Africa. Costa was recently appointed as Actuarial Society of South Africa's ("ASSA's") President-Elect. He is the immediate past Chairman of ASSA's Retirement Matters Committee and has served on many other ASSA Committees

through his professional career. He was formerly an Executive Head at Alexander Forbes Financial Services and a Commissioner serving on the Independent Commission for the Remuneration of Public Office Bearers, an appointment made by the President of South Africa.

Costa qualified as an actuary in 1998 (being a Fellow of the Institute of Actuaries and the Actuarial Society of South Africa). He holds an MBA obtained through the University of Chicago's Booth School of Business and is also a CFA and CAIA Charterholder. He is a lover of music (his interests are diverse - from Dr. Dre to Depeche Mode to ABBA to Coldplay), is a die-hard Chelsea FC football fan and is undoubtedly Rafael Nadal's biggest fan! His passions include tennis (which he is not very good at!), table-tennis (which he is much better at) and backgammon (which he believes he is exceptional at!) He also does a fairly impressive impersonation of Michael Jackson on the dance floor!



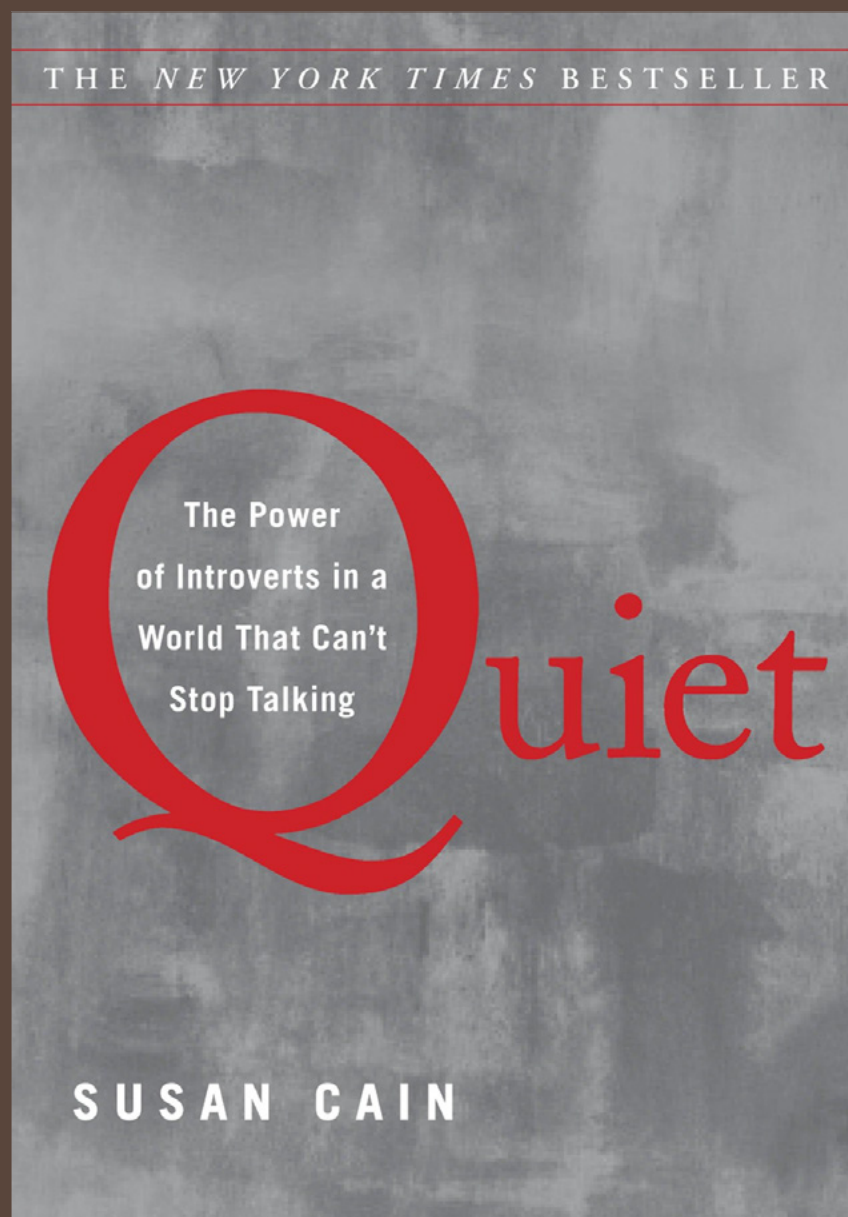
BOOK REVIEW

Most actuaries that I know are introverts. And if the author of this book is to be believed, those that don't appear to be, might just be masquerading as extroverts to survive in an extrovert-loving world.

"Quiet" is a fascinating read that delves into the differences between introverts and extroverts (including physiological differences) and offers guidance on how introverts can play to their strengths in their careers and personal lives. It is written from a North American perspective, but the insights that it provides should be useful to people everywhere, regardless of which side of the introvert/extrovert divide they sit on. Although there is no universally agreed upon definition of what an introvert is, the author uses this term to describe people who identify with most of the following attributes: reflective, cerebral, bookish, unassuming, sensitive, thoughtful, serious, contemplative, subtle, introspective, inner-directed, gentle, calm, modest, solitude-seeking, shy, risk-averse, thin-skinned.

The book traces the rise of the "extrovert ideal" back to a time in the US in the early 1900s when the culture of personality replaced the culture of character. It chronicles the way that this ideal went on to invade all areas of life and can be seen today, for example, in the way children are taught in schools, and the way businesses are run.

The author's hope in writing this book is that readers will have a newfound sense of entitlement to be themselves. Her effort to achieve this is admirable, as she reveals "superpowers" that introverts possess and details how these can be leveraged in a world that doesn't always value them. She argues intelligently and persuasively for the recognition of the unique value that introverts bring to the business world and to life in general.



As a card-carrying introvert, I found it strangely comforting to note that many of the personality traits that I possess are common among introverts. In particular, I have always had a horror of small talk and will go to great lengths (literally and figuratively) to avoid it. "Quiet" shares a number of amusing anecdotes of similarly afflicted introverts who employ tactics such as hiding in the bathroom during the lunch break at a conference to avoid exhausting, mind-numbing conversations.

The extrovert ideal is far from being universal and therefore, if all else fails, perhaps one might consider relocating to some parts of Asia where researchers have found that traits commonly associated with introversion are actually highly prized. 🇦🇵

Reviewed by **Hannah Chivaka**,
Independent Consulting Actuary



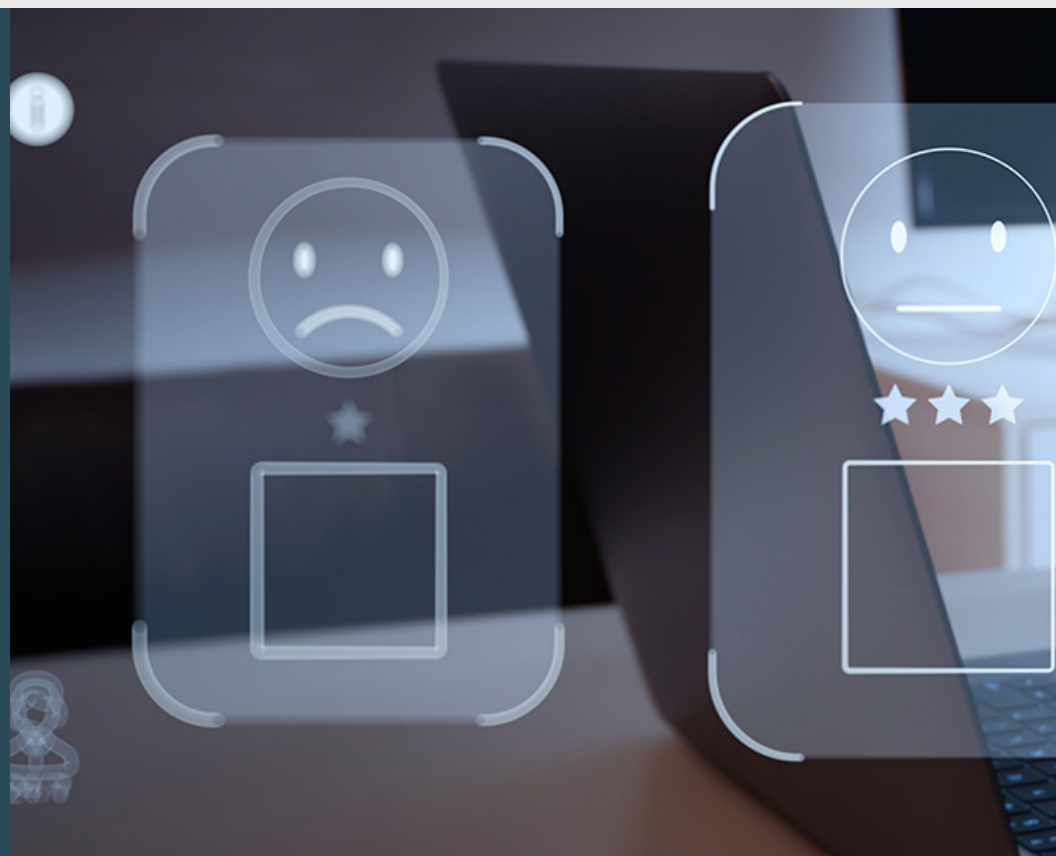
LESSONS LEARNT FROM 4 DECADES

of life assurance
product development

As I reflect on my 40 years involvement in life assurance product design, development, pricing and distribution, I would like to highlight areas where we can learn from some of the actuarial and industry practices of the time. I will also touch on other aspects of service delivery meant to meet policyholder expectations.

In this article I discuss the first series of areas where we could have done things differently to meet policyholder expectations more effectively.

This article is written to **stimulate debate in the profession and to encourage us to take a more systemic and customer focused approach** when dealing with the challenges we face today.



Relevance

The cases I am sharing are of great educational and professional development interest and relevance to those working in the area.

While some of these practices were widespread across the industry, others were restricted to one company. With the exception of a few instances where consequences were catastrophic for companies (e.g. Equitable Life in the UK), these issues did not get extensive coverage in the financial or popular press and had limited exposure in actuarial conventions and sessional meetings.

This article is written to stimulate debate in the profession and to encourage us to take a more systemic and customer focused approach when dealing with the challenges we face today. Let us learn from the errors and blind spots of a previous generation of actuaries and not repeat them in a different form in today's context.

Unit linked endowment policy design

In this article, I will deal with a common theme at the time, of unit linked endowment policy design, in highlighting what I now call, with the benefit of hindsight, actuarial

blunders. While, in theory, unit linked contracts should be simple and transparent, the driving force of profit maximisation meant that, in practice, product design was more about finding ways of making the product seem attractive while not disclosing the real costs.

Actuarial funding and capital and accumulation units

The concept of capital and accumulation units was my first exposure to "unusual" but interesting actuarial innovations. As a recently qualified actuary (1977) working in the valuations area of a very long-established UK proprietary reversionary bonus company, Sun Alliance in the UK, that had a South African subsidiary called Protea. Sun Alliance had a wholly owned subsidiary life company that wrote unit linked business. The unit linked company, although at least a decade into its existence, was still not profitable because of new business strain. This was the norm for new life companies.

Shortly before then, a new company that we shall call Company A had been started by a South African émigré, offering only unit linked products, mainly endowment assurances. Within a very short time, it was profitable and paying dividends.



The appointed actuary at Sun Alliance commissioned one of the actuaries to investigate this phenomenon and discovered the concept of actuarial funding that Company A was using to minimise new business strain. His findings were shared with all those in the valuation division where I worked.

In the old days, words used in product literature could be taken literally. If the product literature said that 80% of each premium was allocated to purchase units in an investment portfolio, then that is exactly what it meant. The company could only use the other 20% for other purposes, as it had to use the 80% to buy units.

However, with the newly found and innovative actuarially funded units concept, the word “allocate” changed its meaning, only subtly on the surface, but significantly in reality. The promise was now no longer to purchase units with the 80%, but that 80% of the premium would be allocated to units. There was no longer any requirement to buy units equal to 80% of the premium in the literal sense.

The concept of actuarial funding consisted of setting up unit valuation reserves equal to the “funded” value of the nominal allocated units. The funded unit reserves would be the notional unit reserves, discounted by an assurance

factor, using the management fee rate as the discount rate. These funded notional units would grow to exactly equal the nominal units at maturity, or on death, by the unwinding of the discount rate. The unit linked assets and liabilities would, therefore, be perfectly matched in an actuarial sense.

If the policy design was to allocate 80% of each year’s premium to purchase units, as compared to a non “funded” company that would only have 20% of the premium left to meet other expenses, Company A would have 100% less 80% times the assurance factor.

For a thirty year endowment policy paying maximum commission, depending on the management fee rate, this would be as much as 55% of the premium in the first year, reducing by the management fee rate every subsequent year. Hence it could pay attractive commissions without incurring large new business strain.

The salesmen weren’t perturbed by this as they were not even aware of it. The notional allocation was, after all, what they were selling. One could argue that there was no real harm done to policyholders, even though the policy had become less transparent.

However, seeing that notional allocations were the perceived price of unit linked endowments, as the higher the allocation the cheaper the policy, the product actuaries of Company A, and some competitors who had cottoned on very quickly, came up with a variation that I now feel, with the benefit of hindsight, was deceptive.

This was the idea of capital units and accumulation units. Typically, the first two years’ premiums were allocated to capital units and the subsequent premiums to accumulation units.

Capital units had very high management fees - as much as 4% per annum - whereas accumulation units had much lower ones at about 1% to 2%. The terms “capital” and “accumulation” derived from that fact. In essence, at a traditional real assumed growth rate of 4%, the capital units could be expected to retain their value while the accumulation units could be expected to accumulate value.

This meant that, even if the notional allocation was 100% of the first two years' premiums, the actual units that needed to be purchased for a thirty year endowment was as low as 30%. This would enable all acquisition costs to be met within 2 years and profits to flow subsequently. The notional allocation of the remaining premiums could also be set at 100%.

One would have expected the salesmen to start having problems with 100% allocation of all premiums, but this was not the case, and subsequent variations even had allocations in excess of 100%.

Subsequently, this practice collapsed when policyholders surrendered their policies or enquired about their surrender values. They realised that notional value of the policy was, after all, simply that, notional. The inherent value on which the surrender value was based was the value of the funded units i.e. some 70% less than the notional value.

This product design did not last many years thereafter for that reason, as this was not sustainable. With hindsight, one could say the industry failed consumers in this regard as the products could not meet policyholders' reasonable benefit expectations.

Interestingly, the concept of more than 100% allocation persists today in some single premium designs in the UK as well as in South Africa. The relatively small commission rate and subsequent lower surrender value penalties applicable to single premium policies probably explains that.

Basic profit target as a constant proportion of commission

It is interesting to reflect on the basic profit target in Chris Smart's seminal 1977 paper "Pricing and Profitability in a Life Office", referred to in the later paper by Jeremy Goford – "The Actuarial Control Cycle".

Chris Smart proposed that the discounted value of profits should be equal to a constant proportion of the commission paid to the salesman. This was meant, ostensibly, to avoid any bias that might make a salesman

I believe that by sharing these issues, and discussing some of the root causes underlying the challenges that arose, **the current generation of actuaries may, hopefully, learn and avoid similar mistakes of their own.**

sell a more profitable product to the detriment of the policyholders.

The unstated assumption in that argument is that salesmen's commissions are a fixed constant that the product design actuary or the life office could do nothing about. The reality was that, since first year commission rates increased with the term of the policy until a maximum of 30 years, it was in the interest of both the salesman and the shareholders that the longest possible terms were sold. Of course, inflationary benefit illustrations encouraged the policyholders to agree to those. The longer terms amplified the benefits of funding as well.

The commission bias

The commission bias is one that is interesting to discuss further. It is no accident that commission rates increase with the term of the policy. The longer that a policyholder commits to paying his premiums, the more commission can be afforded over the lifetime of the policy. This has been the case for more than a hundred years.

The problem has always been that for the average recurring premium policy an "as and when" commission structure would not generate enough reward for the effort a salesman has to go through to identify a "prospect" and then to convince him of the need for assurance, hence the upfront of the commission. However, with that upfront and the unwillingness or inability of the company shareholders to fund the un-recouped acquisition expenses on early termination, the concept



policyholder focus throughout the life assurance industry over most of those 40 years. By and large, there was only one goal, which was maximising market share of new business for mutual companies and doing so on a profitable basis for proprietary companies without regard to policyholders' reasonable benefit expectations.

The product distribution arms effectively became the primary

of "contractual" premiums and termination penalties had to be introduced.

For pure protection policies, in particular whole of life, but also endowment assurances, this contractual aspect could be justified in terms of guaranteed insurability. However, it cannot be justified in predominantly savings contracts. For purposes of competing with unit trusts and other non-insurance savings vehicles, product design had to make the savings endowment look more attractive than it really was, hence the unsustainable practice that emerged.

In the early 1980's, I attended a Life Offices Association or ASSA meeting where Sir Mark Weinberg justified the upfront commission system and contractual premiums as being the most efficient way to maximise the uptake of insurance in a population. It would be interesting to review that paper again now in the context of what we have experienced over the last 40 years!

Positive learnings

I believe that by sharing these issues, and discussing some of the root causes underlying the challenges that arose, the current generation of actuaries may, hopefully, learn and avoid similar mistakes of their own. It is generally better to learn from others' mistakes than our your own!

With the benefit of hindsight, I believe the root cause of these and other blunders, that I hope to share over the next few editions of SA Actuary, was the lack of appropriate

customers as opposed to end consumers, and good product design meant products that were easy to sell and for as much commission as possible. These practices were not only in South Africa, but also other territories like the UK, the USA and the Netherlands.

Conclusion

Whilst these were common actuarial and industry practices of the time as the industry evolved, these past industry and actuarial practices should be taken in the context of the prevailing conditions at the time. It is easy in hindsight to see the failings of these approaches, but they do need to be seen in the context of both the prevailing industry culture at the time and the tools and techniques available to actuaries at the time.

There have been significant changes over the years with regard to increased customer protection, improved disclosure requirements, treating customers fairly, and the development of professionalism training within the actuarial profession. For example, the first professionalism course was in 1992 which the 1991 and 1992 qualifiers were required to attend. The subsequent development of the full normative skills programme has also helped move actuaries from focusing on the mathematically possible to the mathematically possible and ethically acceptable and desirable. 

PAUL TRUYENS
FASSA

Part-Time Consultant and former Product Development Actuary, Statutory Actuary and Non-executive director

ACTUARIAL SOLUTION TO SETTLE NATIONAL STUDENT DEBT

Growing up in the township of Katlehong under poverty and hunger, I resorted to selling vegetables house to house using a wheelbarrow while also selling sweets at school from grades 2 to 12 – to avoid crime and poverty. In my neighbourhood inspiration came from gangsters with big BMWs and Jeeps.

The work done by ASABA (Association of South African Black Actuarial Professionals) and SAADP (South African Actuarial Development Programme) through their school outreach programme introduced me to the Actuarial profession for the first time in 2012, during my Matric year, and I pursued an Actuarial Science degree at the University of the Free State. It has been life-changing and at the core of helping me provide systematic solutions in the township.

Our core business at Wesolve4x is providing actuarial reports for Road Accident Fund Matters and Medical Negligence claims. As a way of giving back to the community through the Wesolve4x Foundation, in partnership with ASABA Schools Outreach, we support #BecomeAnActuary programme where we provide weekend mathematics extra lessons for grade 4 to 12 learners in adopted schools, and also provide mathematics extra lessons for parents so that they can help their kids with school work, for free. To address hunger, parents contribute R250 monthly for the monthly grocery stokvel which is valued at more than they pay. The hamper includes 12.5kg maize meal, 5kg rice, 2kg brown sugar, 2-litre cooking oil and KOO baked beans.



Learners in class



Parents Learning Maths

Wesolve4x Model = Maths + Parents – Hunger

Through the tutoring programme, we hire graduates to assist learners and parents with mathematics in the township and rural schools. Through this we inspire the next generation of actuaries, while parents collect the groceries at school during their lessons to ensure we don't have storage costs.



Parents Collecting groceries after class

As a direct response to our graduates with historic debt and to assist learners, we, as former victims, developed an actuarial solution, Wesolve4x Student Debt Stokvel. With the Wesolve4x Student Debt Stokvel, we pool the risk with the parents and the community by donating R100 and any other amount. Between 15 November and 30 December 2021, we raised R1.3 million and settled student debt for 102 students.



Celebrating the Wesolve4x Student Debt Stokvel beneficiaries who are now debt free

Wesolve4x Student Debt Stokvel has two main objectives: to wipe out the national student debt and make education affordable by subsidising tuition fees by 90% for all students through citizens' support.

Wesolve4x Student Debt Model Key Actuarial Assumptions

- +20 age group estimated to be +45 Million population donate R100 each monthly
- No Actuarial risk

WITH ONE OF THE MOST RURAL SCHOOLS IN THE EASTERN CAPE, CALLED MZINTO PRIMARY SCHOOL, WE ARE CURRENTLY FUNDRAISING TO BUILD THE SCHOOL ITS FIRST SET OF FLUSHING TOILETS AFTER 112 YEARS. NOT FORGETTING THE JOY OF TEACHING MATHEMATICS TO PARENTS.

The application of the model means assuming the +20 age group of an estimated +45 million population each donate R100 monthly. This means

the population (South African citizens) raise and pay off +R4.5 billion monthly and within 4 months the estimated National Student Debt of R14 billion will be wiped out. From month 5 tuition fees of all students in South Africa will be subsidised monthly by R4.5 billion making education affordable where citizens cover 90% and the students pay 10% of their tuition fee. This is based on the principle of Ubuntu. Actuaries have a more important role in transforming the livelihood of all South Africans.



#BecomeAnActuary Charity Drive

Our milestone is in the 12 adopted schools. With one of the most rural schools in the Eastern Cape, called Mzinto Primary School, we are currently fundraising to build the school its first set of flushing toilets after 112 years. Not forgetting the joy of teaching mathematics to parents.

The #BecomeAnActuary Charity Drive on 18 December 2021 in Katlehong township was a successful event with over 500 kids receiving McDonald's meals, old clothes, sanitary pads, actuarial career books and career guidance inspiring the next generation of actuaries. The event was sponsored by Europa Art, Actuarial Society of South Africa, Brand South Africa, ASABA, MBE consulting and Wesolve4x Consultancy.

We celebrate one of our Alumni Rotondwa Ndou who is going to study actuarial science at the University of Cape Town in 2022. He passed his matric with 91% in Mathematics and an overall average of 85%. ASABA Chapter UCT will guide and support him to success.



#BecomeAnActuary Charity Drive

In the streets of Katlehong, they call me the "Township Actuary". With more risk to be pooled in the township and rural areas, beyond funeral cover, actuaries have many problems to solve and advance the lives of our poor communities. 🇿🇦

TSIETSI NGOBESE

BSc Actuarial Science (University of the Free State)

Actuarial Analyst and CEO at Wesolve4x

ASABA Executive Member

A LIVING TRIBUTE TO WIM ELS

and his fervent
contributions to diversity.

**HELP MAKE A CHANGE.
PLEASE DONATE TODAY**

HOW CAN I HELP?

You can contribute to this fund by paying
into the account of the Actuarial Society of
South Africa:

STANDARD BANK

Account number 070005478

Branch code 051001

Reference Wim - Donor name or
ASSA member nr.



* All donations will qualify for Section 18A tax certificates.

Please send an email to Renche Jansen (rjansen@actuarialsociety.org.za) with instruction on how you would like your donation allocated between the two causes. Where the allocation is not specified, the donation will be spread equally between the two causes.

Address queries to Mike McDougall (mmcdougall@actuarialsociety.org.za)

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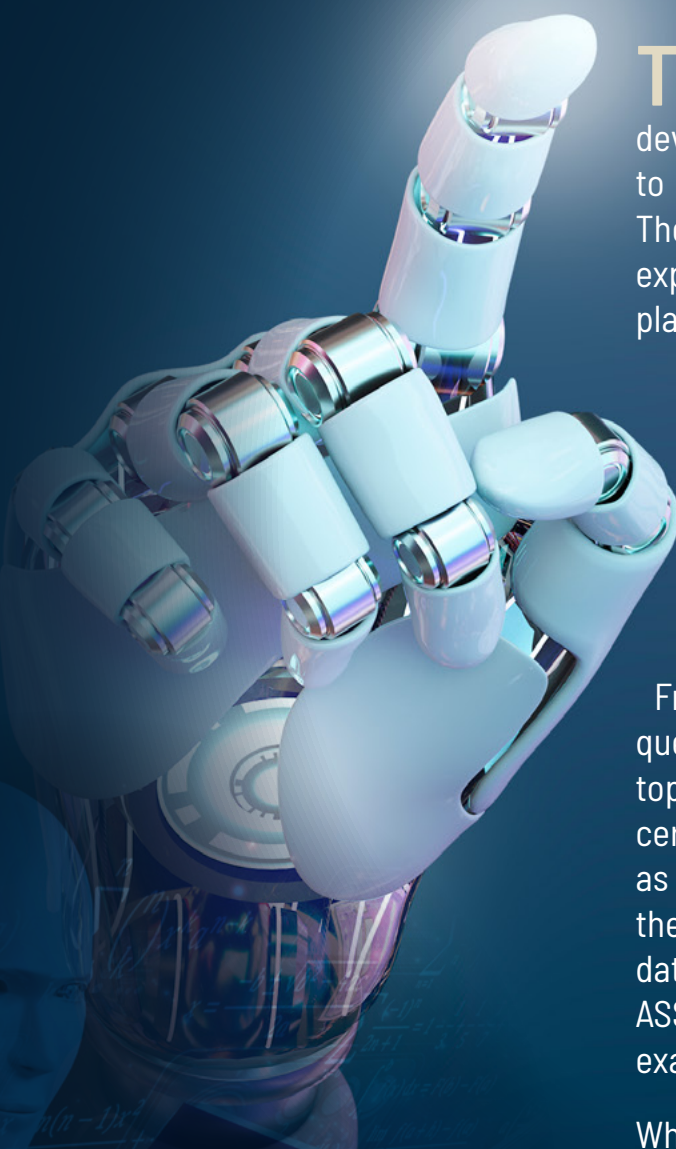
Works with





THINKACTUARY: where artificial intelligence meets exam performance

written by Tonia Nel – provided by Maseeha



ThinkActuary.com is an online platform developed BY actuaries FOR (aspiring) actuaries. The platform aims to increase the efficiency with which you prepare for your exams. The developers, Matthew Smith and Burt Verster, have a lot of experience in the insurance industry and they originally built the platform out of their own need for exam intervention.

A decade or so ago, students had to buy stacks of printed copies of past exam papers if they wanted to practice or use them as revision aids. These days it is very easy to download as many past papers as you want from ASSA's website. However, what was not readily available (until now) is access to markers and real-time feedback on your revision progress.

From ThinkActuary's large data repository built up of past exam questions, the platform has split each of the subjects into various topics and analyzed the frequency with which questions from a certain topic featured in past exams. This research is invaluable as understanding the importance of different topics in a subject is the first step to understanding your exam. The online past paper database includes every available past paper written for a particular ASSA subject and allows you to attempt questions either under exam conditions or purely for revision.

When choosing the exam conditions option, the platform will generate random questions for you to attempt and provide you with a time allocation for each question. Once the time is up, your question is submitted for marking automatically. If you choose not to attempt the questions under exam conditions, you have the choice of selecting your own question or attempting randomly generated questions. Once completed, you will have the option to mark the question yourself (based on the memorandum provided) or have an experienced actuary mark your question for you. An assigned marker will aim to mark your questions within 48 hours of your submission and provide qualitative feedback on how you can improve your accuracy and exam technique.

The ThinkActuary method



STEP 1

Understand your exam

There are more important and less important areas of your exams. Make sure you understand which is which



STEP 2

Do past exam questions

Spend time attempting past exam questions. See what and how you will be asked questions



STEP 3

Understand your weaknesses

Through attempting past questions you can identify areas where you need to focus.



STEP 4

Exam conditions

Put yourself under conditions and see how ready you are for the big day.



STEP 5

Get real feedback

Send your attempt to real Actuaries for review and feedback.



STEP 6

Track your progress, and pass!

Track how well you have done and where you rank relative to your peers and past groups.

As you attempt more questions, Alice (the artificial intelligence engine) will pick up on your performance and suggest future questions based on topics that you have not yet attempted, or attempted but not yet mastered. This way you ensure that you spend most of your revision time on areas where you need the most practice. All your attempts, submitted for marking, are used to benchmark you against where you need to be for the exam. The ThinkActuary platform will track your revision progress and topic coverage and give you an exam readiness score, which can help you determine if you are ready to attempt the exam.

The ThinkActuary platform currently caters for A311, F102, F103, F202 and F203. They will soon be expanding to include F101 and F201. There is a team of 20 qualified markers standing by to review your exam question attempts. Once a student submits a solution to a question, markers will receive a notification and the first marker to accept the marking request will mark the question and provide feedback within 48 hours. Like Uber – but for actuarial exams.

Since ASSA has partnered with ThinkActuary, the boost in exam performance has been tangible! In the first semester of 2021, students who participated in an ASSA tuition course had a 24% better pass rate than students who did not participate in a tuition course. For A311 and F102, the two subjects where students also used ThinkActuary, the improvements were 28% and 96%.

The platform is unique in that it does not only allow ASSA to have access to the students, but it also allows the students to have access to ASSA markers. More than 500 students have used the platform and the number of active users is growing every session.

Anyone can join – you don't have to be a member of ASSA. As long as you have access to the internet, you can sign up for the basic membership at R399 per session (renewable every 6 months). This membership gives you full access to all of the available subjects, their topic splits, personalized performance tracking, artificial intelligence question generation and the chance to mark your own questions. Marking credits can then be added to the cart at R1000 per 100 marks. You can purchase any number of credits, depending on the mark allocation of the question(s) you want to have marked.

If you or your company's Actuarial representative would like a demo of the platform, you can reach out to alice@thinkactuary.com. If you would like to sign up as a marker, you can send an email with the subject "ThinkActuary marking volunteer" to assaadmin@actuarialsociety.org.za. Markers are remunerated at R8 per mark, that is R80 for a 10 mark question.

ThinkActuary is revolutionizing revision and making exam preparation an interesting and interactive process. We can't wait to see what they do next! 

Nathan's Professional Communications Story

With all things in life, everything goes through phases. No one is ever born a teacher, a professional or an expert. The one thing we all have in common is we are born as students. We learn to walk, to run, to interact and to speak. It is in these moments that our experiences create our stories, and it is in our stories that others get to experience without going through them.

So here is part of my story...

On the morning of the 7th of December 2018, my alarm went off at the same time it always goes off. I usually grumble at it going off so early, but it is safe to say that on that morning, I was already up an hour before, tossing and turning. My mind ran wild with all the thoughts of having to fail the communications exam for the 5th time after all the effort I had put into preparing for it.

For this attempt, I did almost everything differently. To keep myself motivated every time I failed an exam, I always told myself, I probably failed because I still had something to learn, and I was determined to find out what that was.

So, for this attempt, I did try something different. I asked for help, and I was surprised at the overwhelming number of people out there willing to help. Firstly, I went for counselling and that helped me identify and address why I went wrong in the previous attempt. Then I approached some of my colleagues with my scripts, some who had completed their exams and some who were still writing exams, which enabled me to leverage off of their experiences. Thirdly, I got my wife to look at a few of my scripts and that gave me a non-actuarial perspective which is important for this exam.

With all this preparation, on results day, I still wasn't confident or convinced with my attempt. My mind was occupied with the thoughts of "what-if" and "I should have done more of this and less of that". But the only thing that comforted me was the thought that I had genuinely done all I could and if not, I still had lots to learn anyway. Frankly, it was frightening, and I think, you may just relate to this.

Back to that Friday morning, with no strength of my own, I got up to start my day. Did everything as I usually did and got to work. As the day progressed and the work got busier, I would sometimes get distracted and forget what was meant to happen at 6pm on that Friday evening.

Throughout the day, I would have this moment when I check the time and my heart would skip a beat - not in a romantic way. You may relate to this too.

Here I was trying hard to stay focused on my work to distract myself but the closer the time got to 18:00, the harder it got. So, at about 16:45, I couldn't do it anymore. I excused myself from work and went straight home. As I waited, the time seemed to move backwards.

Eventually, like clockwork, I received the long-awaited email and experienced something I had never experienced for that exam, that feeling of relief. I had finally passed that one exam which I just couldn't ever bring myself to passing. Like many people I know, the relief only lasted for 5 minutes and disbelief crept in. So, I closed the email, and went to check the list because that could say something different right? I remember asking my wife to make sure I wasn't seeing things and I wasn't dreaming.

So, here I am now, sharing my story and reflecting on my experience. Reflecting on the strength of perseverance, collaboration and guidance, encouragement, and motivation from those who shared their time, experiences, and stories. As I went through that experience, I didn't always feel optimistic. But the truth is (without sounding cheesy), I did learn a lot. That experience has made it easier for me to relate to many.

The journey to qualifying is an interesting one. It is unique to many, but the destination is the same. If not first, second or third time lucky, then it will be next time lucky. 🍀



NATIONAL SOCIAL SECURITY FUND

Coming to South Africa?

THE FACTS



South Africans woke up on 18 August 2021 with a publication of a green paper on the proposed National Social Security Fund (NSSF). Although this paper was later withdrawn, it is expected to be re-issued at a future date. What the common South African would think is probably that this is just another tax going down the same route as other government social welfare plans. General concerns around how everything will work come to mind and anyone that will contribute to the new fund is well within their rights to think how this “new kid on the block” will fit into the Unemployment Insurance Fund (UIF), Road Accident Fund (RAF), Social welfare grants etc.

You will find some interesting background and facts about the upcoming NSSF and some worthy answers to your questions below.

Social security reform is a global trend

A good place to start is to look at what other countries have done (no need to reinvent the wheel, right?). Social security generally speaks to providing a minimum amount of money if one is no longer able to work (‘colloquially known as a pension’) but in a broader context refers to any situation where employment is not tenable. Now, ‘pension’ reform around the world in recent decades has focused mainly on the formal sector. Consequently, many of those working in the informal sector/gig economy/domestic workers have been left out of structured pension arrangements, particularly in developing countries. This is a serious problem given that this group often comprises low-income earners, vulnerable to economic volatility and change (Stewart & Yu-Wei, 2009).

The lack of pension coverage is a challenge not unique to South Africa and, indeed, Africa alone, but is experienced around the world especially by low-income countries. In these countries the informal sector has grown immensely, implying that a greater proportion of the population is at risk of old age poverty or, at any rate, no source of income when they become unemployed. In low-income countries, such as in Sub-Saharan Africa and South Asia, more than 90 per cent of the population is generally not covered, while in middle-income countries this percentage tends to range between 20 and 60 per cent (van Ginneken, 2003). In South Africa, it is estimated that the percentage covered is around 50%.

Formal/informal? Should you care about NSSF?

With nearly 50% of South Africans not enjoying any form of retirement savings, primarily defined around the formality of someone’s employment status, a question is asked on whether one is formal/informal?

To clarify why the numbers for informal employment are large we look at three questions that are usually asked in surveys to determine the quality of employment.

QUESTIONS TO DETERMINE INFORMALITY

- Does your employer pay contributions to the a pension fund for you?”
(Yes/No/Do not know)
- Do you benefit from paid annual leave or from compensation instead of it?”
(Yes/No/Do not know)
- In case of incapacity to work due to health reasons, would you benefit from paid sick leave?
(Yes/No/Do not know)

All employees who answered “no” to at least one of the above questions are considered informally employed. Some permanent employees will lack at least one of the benefits in question.

So, what is a Social Security/ILO model?

Is it just a fancy word for pension? No, it provides a lot more than just a typical pension (see table below). Social security programs are generally done in line with International Labour Organisation (ILO) Convention 102 of 1952 which makes provision for the minimum standards of social security. Currently, South Africa is not in compliance with the legal benefit provisions in relation to social security, since a large proportion of the population is not covered.

The objective of the ILO convention is clearly stated to reduce poverty because of the loss of a breadwinner. Without proper pillars that ensure wide coverage and adequate provision of benefits in the event of certain events such as death, sickness, disability (actuaries call them contingencies), the informally employed persons would suffer immensely. The table below shows some of the benefits from ILO Convention No. 102 and the relevant percentages of population coverage required.

ILO CONVENTION 102 BENEFITS

PART	CONTINGENCY	STANDARD BENEFICIARY	PERCENTAGE
III	Sickness	Man with wife and two children	45
IV	Unemployment	Man with wife and two children	45
V	Old Age	Man with wife of pensionable age	40
VI	Employment Injury	Man with wife and two children	50
	□ Incapacity of work	Man with wife and two children	50
	□ Invalidity	Widow with two children	45
	□ Survivors		
VIII	Maternity	Woman	45
IX	Invalidity	Man with wife and two children	40
X	Survivors	Widow/Widower with two children	40

(International Labour Organisation, 1952)



So perhaps through the proposed NSSF, South Africa is planning to come up with innovative solutions to meet the minimum standards. Moreover, global consensus explicitly recognizes the rights of all workers, irrespective of employment status and place of work, such that all persons should be able to enjoy, exercise and defend their rights as provided for in the ILO Declaration on Fundamental Principles and Rights at Work.

Integrating the informal sector into the national pension system reduces poverty, fosters economic growth, and promotes social inclusion and gender equality. This is very important especially considering the demographic changes already taking place. The table below compares the ILO 4 tier model with that of the World Bank.

ILO	WORLD BANK	DESCRIPTION
Tier 1	Pillar 0	Non-contributory social protection / poverty alleviation, provides minimum level of benefit.
Tier 2	Pillar 1	Contributory national social security retirement fund, seeks to replace a portion of income. Usually state run.
Tier 3	Pillar 2	Mandatory retirement provision, usually through employer-sponsored scheme/fund. Usually private sector.
Tier 4	Pillar 3	Individual & voluntary additional retirement savings, usually flexible and discretionary in nature.
	Pillar 4	Informal intra-family or inter-generational of both financial and non-financial support to the elderly.

Will all the above benefits be provided and at what cost ?

It is expected that the proposed NSSF will provide benefits that fall squarely within the table above, but it is unlikely that all the above benefits will be provided at once. Most likely the government will think about pooling together all the various efforts into one central account (i.e. road fund, unemployment benefit, social welfare, healthcare) and then grow the fund from there. For now, it is really anyone’s guess how the final scheme will look.

How about private sector pension plans? It is not yet clear how the co-existence will be done with private occupational pension plans. It is important to note, however, that if the South African government proceeds to ratify the ILO convention 102 then all employed persons in South Africa will have to contribute to the proposed NSSF, with additional layers of provision being at the discretion of the member.

Like all good things, if the NSSF is introduced, participants must expect to pay towards the benefits. Numbers being thrown around are that one should

expect to pay close to 14% of salary to begin with, which could increase gradually to a maximum of around 25% of salary over time (ouch!). It is all planning for now. The test of the pudding is in the eating. So it is good that the proposed launch has been shelved pending further consultations. Until then, we should expect to part with our coins at some point.

SA Government policy

In case you are wondering what the fuss with the NSSF and the additional costs is, we looked through the constitution to put some context to the current effort. Well, you could say the state is mandated to put a robust system in place.

Social protection falls in the SA government’s national objectives as provided in the South African Bill of Rights (Chapter 2 of the Constitution, No. 108 of 1996) which should guide policy in its role in serving public interest. It is thus the responsibility of the South African government to take all measures within its capacity to alleviate poverty and ensure sufficient provisions for the impoverished such as people working in the informal sector.



OBJECTIVES TO GUIDE STATE AND ALL INSTITUTIONS AND AGENCIES OF GOVERNMENT

Article 27

The State must guarantee everyone’s right to “have access to health care services, including reproductive healthcare; sufficient food and water”, as well as the right to social protection, including appropriate social assistance if they are unable to support themselves and their dependents.

The Government

Social protection is a critical policy for sustainable development that...

Is a human right	fosters inclusive economic growth	links to activate labour market and formalisation policies	reduces poverty, ill-health and inequality
Increases people's capabilities and productivity	cushions the social and economic effects of crises and shocks	enhances social cohesion and political stability	promoted inclusion and gender equality

(International Labour Organisation, 2014)

Critical success factors

The greatest problem with pensions of any kind is the concept of delayed gratification. For individuals from low-income backgrounds, a solution to the question “how do I feed my family today?” is more critical than “how will I survive thirty years from today?” To encourage savings for retirement, the proposed NSSF would have to develop incentives that will prop up the uptake and persistency of membership in the proposed Scheme.

Documented evidence suggests that using tools such as offering savings backed loans achieve such an objective. In addition, research has shown that matching contributions provides more tangible incentives for individuals to participate in pension funds than the more traditional approach of mandating participation and providing preferential tax treatment, especially for low-income groups and individuals who may not participate in the formal labour force and therefore receive no advantage from tax-based incentives (Hozlmann, et al., 2013).

Survey from the region

A number of countries in the SADC region have launched social security schemes. The Actuarial Society of South Africa is undertaking a survey to document lessons

from those schemes. Results of a study on 6 schemes (Zimbabwe, Tanzania, Kenya, Mauritius, Zambia and Rwanda) will be published soon.

Zimbabwe will be of particular interest due to their proximity to South Africa and the various economic cycles that they went through. So, a special coverage on the Zimbabwe National Social Security Authority will be issued.

Conclusion

South Africans should brace for a new pension plan which will likely be known as the National Social Security Fund (NSSF). It will be introduced on the back of a strong government policy on social protection and most likely will be implemented in some form.

This means less disposable income for South Africans who were not already contributing to a formal pension plan, and probably not so for those already on pension plans. For what it’s worth, it will should reduce poverty for the low-income sector and allow for dignified life in old age.

TAWANDA CHITUKU
on behalf of the ASSA social security and retirement reform working group”.
Associate Actuary

INCREASING PENSION COVERAGE IN SOUTH AFRICA

As per the Quarterly Labour Force Surveys released by Statistics SA, South Africa's unemployment rate is well in excess of 40% according to the expanded definition (which includes those discouraged from seeking employment). As a result, a large proportion of South Africa's population depends on the state grant system¹. The grants currently include the old age grant, a child-care grant, and a disability grant.

Recently, there have been calls for the introduction of a Basic Income Grant to extend social security coverage².

However, as the grants are funded from general taxes, their provision will always be limited by affordability constraints, especially in an economy where there is high unemployment, and especially in times of slow economic growth. As the state old age grant is the largest contributor to government's grant spend, it makes sense that alternative ways of funding this need, which decreases the financial burden on the state, be investigated.

The Department of Social Development issued a green paper on Comprehensive Social Security and Retirement Reform in August 2021. Although the paper was subsequently withdrawn, it highlighted a number of relevant issues. One such issue is the low level of contributory pension coverage in South Africa i.e. there are relatively few individuals who save during their working lifetime to provide themselves with an income during their retirement. This means that there is a high reliance on the state to provide income to individuals during their retirement. This is illustrated in the table below³:

	Numbers Employed 2021 Q1 ('000s)	Retirement Fund Contributors	Contributors as % of Numbers Employed
Earnings in 2021 prices			
R0 – 45,000	5,406	657	12.2%
R45-90,000	3,932	915	23.3%
R90-350,000	4,372	3,042	69.6%
>R350,000	2,672	2,386	89.3%
Form of Employment			
Formal (non-agricultural/household)	11,282	6,553	58.1%
Informal (non-agricultural/household)	2,921	395	13.5%
Agricultural and household	2,180	51	2.4%
TOTAL	16,383	7,000	42.7%

¹ Magubane K; 2021; SA grants system on par with the world's best, says dept of social development; News24

² Ferreira E; 2021; Medium-term budget: basic income grant decision deferred to next year; Mail and Guardian

³ Burger R; 2021; Overview of Current Pension Reform Discussions; Pension Lawyers Conference



In comparison, the Unemployment Insurance Fund (“UIF”) has roughly 10 million contributing members (this excludes the 1.3 million government employees and most informal sector workers)⁴. There does, therefore, appear to be significant room for improvement when it comes to contributory pension coverage.

Formal employment is where workers are assured of their employment, have specific working hours and receive regular remuneration. Informal employment is all other forms of work.

The pension coverage that is most concerning is that of the low income earners, many of whom are employed outside of the formal sector. These workers are largely dependent on the state grant system for pension benefits.

Though the Green Paper identifies this as a problem, and suggests that contributory pension coverage should be improved, it is relatively vague as to how this

could be achieved. This article sets out our thoughts as to how pension coverage can be improved, and does so separately for those in the formal and informal sectors. It does not address the problems of adequacy or level of the savings, but simply looks at how the number of individuals who are saving for retirement can be increased.

First, we very briefly describe the proposals that have been made.

GREEN PAPER PROPOSAL:

The subsequently withdrawn Green Paper makes a proposal for mandatory membership of all employees, including those in the informal sector and the self-employed, to a National Social Security Fund (“NSSF DB Fund”). This will be a defined benefit fund that will require a compulsory contribution of 8%-12% of qualifying income (subject to a ceiling). Contributions of “low-income workers” (those earning less than R22,320 per annum) will be subsidized by the Government. Benefits include retirement pension (aimed to provide a pension of 40% of pre-retirement income after service of 30 years for an individual earning R90,000 per annum), funeral, disability, death and unemployment benefits. As the contributions and benefits are capped, individuals earning more than R90,000 per annum as well as those wishing to achieve a higher replacement ratio, will need to make additional retirement savings.

It is proposed that all individuals (including the informal sector and the self-employed) earning more than R276,000 per annum also be “auto-enrolled” in an NSSF Default Fund (this would be defined contribution in nature). The level of compulsory contributions to the NSSF Default Fund is not mentioned, but any contributions required will be in addition to the compulsory 8%-12% of qualifying salary contribution to the NSSF DB Fund mentioned in the paragraph above.

⁴ per Andrew Donaldson former Deputy Director at National Treasury, now at UCT's SA Labour & Development Research Unit

Members will be allowed to opt out of the NSSF Default Fund and rather make the required contributions to a private arrangement as long as such arrangement meets certain regulatory criteria. This proposed auto-enrollment system, therefore, amounts to a compulsory retirement fund contributory system extending beyond the salary cap for the proposed NSSF DB Fund.

The levels of contributions towards and benefits ultimately provided by the NSSF could significantly influence pension coverage levels in South Africa depending on how attractive they are perceived to be.

Coverage levels and how best to increase these may differ for the formal and informal sectors. We discuss the differences below.



FORMAL SECTOR:

For the purposes of this section, we consider individuals who are permanently employed with a stable income as being employed in the formal sector. Typically, there would be a formal employer-employee relationship and these employees would be registered for both UIF and income tax. In South Africa, the formal employment sector is relatively well covered by the private sector retirement industry, with coverage estimated at 58%.

Currently there is no requirement for compulsory retirement savings, so all of the coverage is voluntarily provided through employers for their staff as a condition of employment, or through the membership rules in certain bargaining councils.

The proposals made in the withdrawn Green Paper will theoretically solve the issue of coverage as everyone will be forced to contribute to the system. This should be relatively simple in the formal sector where UIF contributions and tax are already paid by employers on behalf of their employees i.e. the employees are already on some sort of "system".

Potential issues:

- **Affordability:** If a compulsory contributory system is introduced, it will come as a shock to people who have never previously contributed to retirement savings, especially if the required contributions are in excess of 8% of their earnings as proposed. Many individuals will genuinely not be able to afford this decrease in take-home pay, which would result in large resistance or resentment.
- **Compliance:** A likely challenge will be enforcement/ checking of compliance, especially of smaller employers, as per the experience of compulsory bargaining council funds. In addition, individuals could themselves try to find ways to avoid contributing to the NSSF to avoid the decrease in take-home pay.
- **Trust:** Large sections of the public do not currently have trust in government-run institutions, so asking them to contribute in excess of 8% of their earnings to a government run pension fund will be difficult and likely met with resistance.

Potential solutions:

Phasing in of compulsory contributions:

If the desired outcome is to increase the number of individuals who save for retirement in the formal sector, the government need only to legislate that all employers make a compulsory contribution to a retirement scheme on behalf of their employees. To mitigate the impact of the introduction of compulsory contributions on take-home pay, the level of the compulsory contribution for the currently employed could start off at say 1% of earnings and increase annually to some targeted minimum level, say a minimum of 15% of earnings to target a pension of 70% of pre-retirement earnings.

On changes of employment, the new employer should take over the contribution rate which was paid by the previous employer and continue increases from there.

For new entrants to the job market, the contribution rate could automatically be set at the minimum targeted level so that individuals become immediately accustomed to saving at this level.

Obviously, affordability is an issue, and not everyone can save for everything at the same time, so this should be considered. For example, to the extent that individuals are paying off another asset, say a home loan, relief could be granted from retirement savings for the period over which that loan is being repaid.

Savings vehicle:

The proposals require that the compulsory contributions be made to a government-run defined benefit fund. This fund will not be 100% funded, i.e. it will rely on future pension payments being made from future tax revenue or future contributions. Besides the resistance to contributing to a government-run institution, due to the low levels of trust in government-run institutions, the structure of this vehicle itself is likely to cause much resistance due to the defined benefit nature and the structural underfunding, and detract from the genuine need for individuals to save for retirement.

In order to increase coverage with least resistance, it may be better not to dictate the vehicle to which such savings must be made, but rather leave this decision either to the individual or the employer. This will emphasize the fact that savings need to be made rather than to focus the debate on the vehicle into which the savings are made.

The biggest challenge of low coverage is within smaller employers, i.e. the Small Medium Enterprise (SME) sector⁵. To date, the private sector has struggled to provide suitable pension solutions for employers in this sector due to product complexity and the servicing model, together with cost constraints, all of which favour larger groups. The small size of employers makes it difficult to service them on a group basis and a more individually themed service model, similar to how retail products function, needs to be implemented for this segment. Depending on the details, the NSSF Default option may be suitable for the SME sector if it allows them to avoid what they perceive as the costs and complexities of the private sector, but trust is likely to be a major challenge.

⁵ National Treasury; 2004; Retirement Fund Reform – a discussion paper

Leaving the provision of retirement benefits to employees/employers is problematic if the available private sector products are not offering value to members, if advice given to employers/employees is faulty or driven by perverse incentives, or if products are not standardised and are difficult to compare and understand. To address this, funds wishing to act as a vehicle for compulsory contributions could be made subject to an approval process similar to that envisaged in the Green Paper for Tier 3 contributions. This could require regulatory standards relating to disclosure, investment strategy, risk management, administration, governance and annuitisation. At the same time, the Government could easily start a government run defined contribution fund, such as the NSSF Default Fund proposed, to compete with the private service providers on value offered to members. Over time, if the Government fund is well run and does offer value to members, it will naturally become a credible provider and competitor to the private sector.

Tax

Tax deductibility of contributions does not provide a major incentive for lower income workers who pay little or no income tax. The Government could introduce different forms of subsidies, such as matching their contributions towards pension savings up to some annual limit, for lower income workers, but the impact of any such incentive on our national budget should be considered.

INFORMAL SECTOR AND ATYPICAL WORKERS:

For the purposes of this section, atypical workers are individuals who work on contract or have employment with irregular income such as real estate agents, commission earners, musicians, etc. Many of these workers would be registered as tax payers.



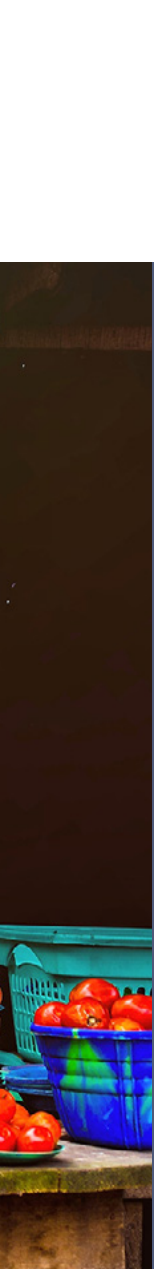
Informal sector workers are those with no formal employer-employee relationship and who are typically not registered on any formal system, and many will be self-employed. These include domestic workers, gardeners, street vendors, spaza shop workers and market traders.

The informal sector is large across Africa. The World Bank confirms that it is smaller in South Africa than the rest of the continent, but still large compared to developed countries and not an insignificant proportion of South Africa's working population. Overall atypical workers and the informal sector represent approximately 31% of employed workers in South Africa⁶.

The problem:

Typical pension solutions do not work for atypical and informal sector workers. This is because typical pension solutions require an employer/employee relationship, consistent income and a consistent contribution rate, none of which exist for an atypical/informal sector worker. The Green Paper mentions this challenge without giving detailed solutions. It only refers to the need to include atypical workers and includes a statement about needing a simplified contribution arrangement. It is our

⁶ WIEGO Statistical Brief No 19; 2019; Informal Workers in Urban South Africa: a Statistical Snapshot



OVERALL ATYPICAL WORKERS AND THE INFORMAL SECTOR REPRESENT APPROXIMATELY 31% OF EMPLOYED WORKERS IN SOUTH AFRICA⁶.

view that, regardless of the compulsory nature of any national social security fund, it will be difficult to set up a national system that will be able to cater for atypical and informal workers, for the reasons outlined below.

Considerations:

Compulsion is not likely to work for most in the informal sector as both employers and employees will find a way to avoid compliance if they do not see the need, do not believe that it is in their interests, or simply cannot afford it. The only way in which compliance could be guaranteed is for proof of retirement funding contributions in respect of any employees to somehow be linked to the payment of tax or UIF. Even in this case, it would not cover those who are not “on the system”. Linking the collection of contributions to the collection of tax or UIF is likely the only way to enforce compliance. For those not “on the system”, compliance will depend on how much value they see in the benefits offered and how much they trust the provider.

Trust is a major issue here, whether it is trust in a private or public sector pension solution.

Any drive to improve pension coverage amongst atypical workers must be linked to **financial education** so that the need for pension coverage is understood. This challenge exists across society and so appropriate communication is essential.

Similarly, the product providers and the Government need to understand the needs that must be met for this segment in order to design useful products that will add value.

The **means test** for the state old age grant is a major disincentive against savings for retirement. Removal of the means test would assist in being able to encourage more people to save for retirement.

Flexibility will be key for this sector, in terms of both making contributions and receiving benefits. Atypical workers typically do not have fixed incomes and cannot commit to specific contributions either in the form of percentages or rand amounts. Consider the example of musicians and artists, whose income is sporadic in nature. Such workers need flexibility in terms of making contributions and receiving their benefits as they do not know exactly when or how much will be required.

Increasing UIF coverage of atypical workers would assist in better preservation of retirement savings. The proposed two pot system in respect of accessibility versus compulsory preservation of retirement savings will also hopefully encourage atypical workers to save for retirement as they know that at least part of their savings is accessible.

Simplicity is required, both to improve understanding and to lower costs. Whether via the private sector or a public sector scheme, benefits would need to be defined contribution in nature due to the volatility in contributions. Increased coverage should hopefully lead to economies of scale, driving down the per person costs.

Pension legislation and the Income Tax Act relating to pension savings come across as being inflexible in general, especially for workers in the informal sector. Increasing flexibility, for example by breaking the direct link between contributions and earnings or the employer in general, would make pension savings more attractive to such workers.



Here too **tax incentives** are of limited benefit to these workers. Government subsidies are proposed but it is not known how much this will cost nor whether this can be afforded. Such incentives are unlikely to have a massive impact on improving pension coverage.

Alternative means of gathering contributions:

Across other sub-Saharan African countries, technology seems to be key in attracting such workers to micro-pensions, which are personal pension savings products that do not fall within standard rules and regulations. Many of these solutions are cellphone based, allowing workers to pay contributions, check on their savings and claim their benefits all using their cellphones. One idea could be to allow a portion of money spent on buying cellphone air time to be allocated to a personal pension savings policy.

Funeral benefits are the most popular form of financial product in SA and many people have more than one funeral policy. Developing an efficient and straightforward way of linking pension savings to funeral benefits would help to improve pension coverage. How else can risk benefits for atypical workers be structured given the volatility in their incomes?

Many people in SA are heavily indebted and have various forms of personal interest-bearing debt accounts. People may be keener to save towards retirement if they can use this as a guarantee to access affordable credit.

Atypical workers belong to various associations that can be used as an avenue to educate people about the need for pensions savings and promote different options to do so. These associations include taxi drivers, market traders and small/start up farmers that are specifically set up for individuals working in these sectors. They may also belong to trade unions, although members of trade unions typically work in the formal sector. However, other affinity type associations can also play such a role, including faith based organisations such as churches and sport/community clubs. People have trust in such associations, which can help to mobilise support for such programmes, provided the benefit can be demonstrated to association leaders to get their buy-in.

The private sector in South Africa, in conjunction with the regulators, also need to do more to develop cost efficient and simple to understand pension savings products to attract workers. Traditional retirement annuity funds have dropped in popularity, but a more streamlined and accessible version of the product could be a possible solution.

CONCLUSION

The issue of low pension coverage has existed in South Africa for many years. The withdrawn Green Paper proposes a compulsory defined benefit National Social Security Fund with an additional defined contribution NSSF Default Fund to provide universal coverage of social security benefits, which includes pension benefits, to all individuals.

As discussed in this note, we are not convinced that the structure proposed will be able to accommodate atypical and informal sector workers at all, and thus we doubt that this will increase coverage for this group. Even in the formal sector, the structure proposed is likely to be met with much resistance, both due to the level of compulsory contributions as well as the current lack of trust in Government-run institutions.

It seems to us that the proposed plan, as it stands, is too all encompassing and too big a leap from the current reality, and will take much negotiation, consultation, and many structural reforms before it can come into effect. We would suggest that the Government takes a step-by-step approach which will achieve quick wins in different areas. This will get us closer to the ultimate goal quicker. It will also enable the private sector to develop more appropriate products to attract those who do not currently save towards their retirement.

There is nothing stopping the Government from introducing reforms to encourage retirement savings, across the various types of workers in South Africa. Across the formal sector, compulsory contributions to own-choice approved retirement savings vehicles can be phased in over time. Across the informal sector, current regulations can be loosened to allow maximum flexibility in terms of making retirement savings contributions and the transfer of benefits between providers. Alternative ways of contribution collection can be investigated.

The Government can and should introduce a defined contribution Government-run fund to which individual workers or employers can contribute towards retirement savings, if they believe that this will be an appropriate alternative to retirement solutions via the private sector. This is especially the case if the Government is

of the view that such a fund can offer better value to members than the private sector. Of course, the current distrust in Government-run organisations will be a major challenge in attracting people to such a fund. A clean record over time, if the fund is well run, may assist in overcoming the distrust which currently exists towards Government-run institutions.

Most importantly, the value of saving for retirement needs to be communicated to and understood by workers so that this is not a grudge purchase. Tax incentives for the low income and atypical workers could be made more meaningful.

It seems to us that the proposals made aim to achieve tremendous goals in one giant leap. The risk with giant leaps, though, is that they are sometimes too big. Instead of moving you forward, they cause you to get stuck in indecision or debate. It may be quicker and easier to get to the other side with smaller incremental steps. Then our journey to a better future need not wait until all the details of a perfect system are agreed, but can start today with the low hanging fruit of increased coverage in a retirement system that already exists. Let's get all of the quick and effective wins that we can within the system that we have before we design a new world. 🇿🇦

STEPHEN WALKER and JOANNA COMBRINK,
on behalf of the ASSA social security and
retirement reform working group".



Role of Actuaries in **PENSION FUND CAPITAL ALLOCATION DECISIONS INTO INFRASTRUCTURE AND PRIVATE DEBT**

INTRODUCTION

Pension Funds are a major source of capital in the investment markets, especially the listed investment sector, in many countries. South Africa is no different with many actuaries providing investment advisory services that impact capital allocation decisions by pension funds. Actuaries may need to upskill themselves to understand the risk and return characteristics of infrastructure investment and private debt and their suitability in a multi-asset class portfolio.

A study conducted by the Organisation for Economic Development and Cooperation ("OECD") in 2011 revealed that Pension Funds, although major providers of capital, were not major players in real estate and private equity, and most certainly in infrastructure. Our own experience in South Africa confirms this as the situation has not changed over the last decade. Similar studies show the same for limited private debt investment by pension funds.

CAPITAL ALLOCATION TOWARDS INFRASTRUCTURE

In most African countries, Pension Funds hold large amounts for investment. However, the allocation towards infrastructure is generally disappointing, accounting for less than 5% of Pension Fund assets in developed Pension Fund jurisdictions such as South Africa. Regulation 28 of the Pension Fund Act in South Africa is currently under review, with investment by pension funds into infrastructure proposed at 45% of total assets, which we hope will change the situation.

The reasons for limited investment in infrastructure are the many barriers that exist in this asset class, that is generally not well understood. The OECD report notes that infrastructure investing offers different characteristics from other asset classes, which could represent barriers to entry to potential investors. They cite high upfront costs, lack of liquidity and the long asset life that require significant scale and dedicated resources to understand the risks involved. Pension Funds, being predominantly long-term investors and holding high capital resources that many other investors lack, are one of the most suited to infrastructure investment.

GOVERNMENTS AND PROJECT SPONSORS NEED TO RECOGNISE THE MAJOR BARRIERS TO INVESTMENT IN THIS ASSET CLASS **AND CREATE AN ENVIRONMENT THAT PROMOTES PENSION FUND INVESTMENT.**

Governments and project sponsors need to recognise the major barriers to investment in this asset class and create an environment that promotes Pension Fund investment. Many factors, including the lack of well-prepared and bankable investment opportunities, lack of clarity on the few investment opportunities that may be available, lack of political commitment over the long term, regulatory instability, regulatory barriers, lack of transparency, fragmentation of the market among different levels of government, negative perception of long-term value of infrastructure and high bidding costs involved in the procurement process of infrastructure projects, make Pension Funds perceive infrastructure investment opportunities as too risky. There is also a perception of mis-alignment of interests between infrastructure funds and Pension Funds in addition to a shortage of data on the performance of infrastructure projects, including lack of benchmarks for measurement of performance.

Other Pension Funds do not invest simply because they lack scale and expertise. Engagement with investment consultants suggest that very few have invested in developing expertise in infrastructure investment. This means that they are not able to provide sound advice to Trustees of pension funds. Actuaries can play a significant role by developing expertise in this area, especially in the face of changes in Regulation 28.

In creating a supportive environment, the results of the investigations of the OECD show four key factors that

may lead to increased infrastructure investment by Pension Funds. These are the availability of investment opportunities for private finance capital and, therefore, for Pension Funds; the maturity and size of the pension fund market; pension fund regulations that may require Pension Funds to hold infrastructure investments; and increasing knowledge of infrastructure risks and returns as an asset class.

In the industrialised countries of Europe, North America and Australia, the involvement of the private sector in the provision and operation of infrastructure rapidly increased over the past 30 to 40 years, with both a history of privatisation and public policy leading to models such as Public Private Partnerships attracting Pension Fund investment. In Australia, for example, as the number of infrastructure transactions grew, so did the availability of financial instruments, predominantly infrastructure funds, providing investors with access to infrastructure investment opportunities, leading to the development of investor understanding of infrastructure.

The maturity and size of the pension fund market plays a key role. In most of Africa, the Pension Fund industry is developing and still very young. Apart from South Africa and a few other countries in North Africa, there is limited investment by African Pension Funds into infrastructure. However, Africa can still benefit from the allocations made by Pension Funds in the other more developed markets through foreign direct investments as long as the risks are well managed, and the returns are commensurate with the risks.

Regulations relate to both regulations encouraging pension savings, thus directly influencing the size of the Pension Fund market and the overall institutional capital available, and those directing where those savings must be invested, thus directly influencing the amount of institutional capital available for investment into infrastructure. In South Africa, the

proposed amendments to Regulation 28 largely address the second issue of influencing the available capital from pension funds and the allocation of such capital towards infrastructure. Most countries' institutional investors' traditional exposure to infrastructure has been through bonds with some regulations requiring investment into Government bonds that may then be used in infrastructure development.

As knowledge of infrastructure as an asset class increases, there is a need for consistent investment by Pension Funds, both directly and indirectly, with direct investment requiring exceptional knowledge that actuaries are well positioned to acquire. The OECD report concludes that the major reforms required to promote infrastructure investments include: 1. Government support for long-term investments by designing policy frameworks that are supportive of long-term investing; 2. Reforming the regulatory framework for long term investment; and 3. Improving conditions for infrastructure investment by creating a transparent environment.

CAPITAL ALLOCATION TOWARDS PRIVATE DEBT

One of the major investment instruments that can be used to promote infrastructure investment is private debt. Private debt can be invested in many industries including infrastructure and real estate, but also in more important industries that contribute to job creation and economic growth such as agriculture and the SME sector among others.

Private Debt does not appear to be currently evident in the Pension Fund industry, and the Pension Fund industry does not, to date, appear to recognise Private Debt as an asset class that can be used to achieve diversification in their asset portfolios as the risk-return profile has been proven through research in the global Private Debt Market to be different from other asset classes like Private Equity and Listed Fixed Interest debt. Private Debt may be considered as a surrogate asset that can provide equity-like returns due to the flexibility in structuring, but with bond-like features, offering protection to investors.

ONE RESEARCH REPORT
IN THE GLOBAL PRIVATE
DEBT MARKETS ISSUED
IN 2019 DEFINES THE
TERM 'PRIVATE DEBT'
**AS TYPICALLY APPLIED
TO DEBT INVESTMENTS
THAT ARE NOT FINANCED
BY BANKS AND ARE NOT
ISSUED OR TRADED IN AN
OPEN MARKET.**

It may be considered to be the best of both worlds as shown by research in the global Private Debt industry.

One research report in the global Private Debt markets issued in 2019 defines the term 'private debt' as typically applied to debt investments that are not financed by banks and are not issued or traded in an open market. The word 'private' refers to the investment instrument itself and not necessarily the borrower i.e., public companies can borrow through private debt just as private companies can.

Private debt falls into a broader category termed 'alternative debt' or 'alternative credit', and is used interchangeably with 'direct lending', 'private lending' and 'private credit'. Within the private debt market, investors lend to investee entities – be they corporate groups, subsidiaries or special purpose vehicles established to finance specific projects or assets – in the same way that banks lend to such entities. Private Debt investments are typically used to finance business growth, provide working capital, or fund infrastructure or real estate development.



Further research in 2015 noted that, with returns remaining historically low across asset classes, institutional investors will continue to hunt for yield, with Private Debt expected to gain more traction among investors with longer time horizons who want to exploit the illiquidity premium associated with Private Debt. This falls squarely within the appetite of Pension Funds who are typically long-term investors.

Asset classes like Private Debt that were once considered peripheral will most likely continue to gain momentum as the global macro-economic environment changes. With increased regulations, Banks can no longer provide the levels of lending they did before the 2008 global financial crisis, and the new Basel regulations for banks introduced post the global financial crises would mean that the rush towards Private Debt is structural and is unlikely to reverse.

Another research report in 2020 noted that the following key factors will continue to present Private Debt as an attractive asset class for long term institutional investors like Pension Funds:

- 1 Inflation beating risk adjusted returns uncorrelated with other asset classes like equities and fixed interest investments
- 2 Enhanced structural protections due to the detailed due diligence that is undertaken when issuing a loan.
- 3 Relative appeal over high yield bonds due to changes in mainstream bond investing over the past few years in some global markets, where there has been reduced liquidity in some secondary bond markets with no corresponding liquidity premium added to compensate for the illiquidity.
- 4 Relative appeal over high yield bonds due to changes in some public capital markets where there has been a shift in issuance from floating to fixed-rate bonds, favouring issuers when rates rise, with investors shifting to Private Debt markets that still offer floating rate returns.

In giving the history on the rise of Private Debt, another research report in 2015 noted that the 2008 credit crisis led to bank lending shrinking as banks were forced to repair their balance sheets, and with the Basel II and Basel III international banking regulations tightening both capital requirements and liquidity requirements for banks. This was witnessed across the globe.

Mid-market companies needed fresh capital that they could no longer secure from banks to refinance their existing loans and raise new capital to fund their business growth. This gave rise to Private Debt markets as institutional investors, especially in the US and Europe, were able to step in, attracted by Private Debt's returns that has the potential to outperform some equity and fixed income indices, and the low correlation with other asset classes. As a diversification play, Private Debt is perceived as having superior protections compared to traditional bonds and equity-like returns.

Another research report on the global Private Debt market by Preqin in 2020 noted that Private Debt allocations are favoured by multi-asset investors due to the potential for both stable cash flows and uncorrelated returns. They noted that amid equity market volatility and with an uncertain period ahead for many sectors within private markets due to the Covid 19 pandemic, Private Debt investments can anchor an investment portfolio.

5 Private Debt offering equity like returns due to the equity kickers that are often attached to private debt investments that provide equity upside for investors.

6 Private debt as a cross-over asset, providing bond like features and equity like returns, is particularly compelling during equity bear markets where:

- buy-and-hold investing may struggle as equities may be outperformed by bonds over a long period
- a. *actual returns may diverge markedly from expected returns for most asset classes*
- b. *diversification may become less effective, as the correlation between historically lowly correlated asset classes may continue to rise, which may promote innovations in institutional investors' approach to asset allocation in pursuit of broader diversification, especially where asset liability matching is required, in which case Private Debt may be preferred as a surrogate asset for equities from a return perspective and for bonds from a hedging perspective.*

A further 2019 research report stated the supply and demand factors contributing to the Private Debt market's continued growth globally, dominated by Europe and the US, as outlined below.

Supply factors can be summarised as:

- Banks have reduced lending, particularly to smaller private companies, to meet regulatory capital requirements by deleveraging, thereby limiting sources of capital.
- In turn, that has made direct lending more attractive to investors, as yields may be higher than public debt and flexible terms may allow interest payments to be index linked.

Demand factors can be summarised as:

- Investors are seeking to increase yield in an ultra-low interest rate world.
- Investors are seeking diversification from traditional asset classes.
- Investors are seeking floating interest rates to protect against rising rates.



- A recovering global economy will continue to drive considerable demand from companies to finance and/or refinance loans to enable growth.

CONCLUSION

The need for pension fund investment into infrastructure and private debt is significant. Actuaries can play a major role in promoting pension fund investment into these asset classes through their influence on capital allocation decisions as advisors of pension funds. This requires actuaries to upskill in areas of investment application, banking application, and enterprise risk management. Application of risk management models such as the Risk Analysis and Management for Projects (RAMP) model is critical. 

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EXOTIC CARS AS AN ALTERNATIVE INVESTMENT

Khushal Dhrochand



Buying a car is most often considered a terrible financial decision, especially if you are buying it brand new. Most cars depreciate between 25 to 35% the moment you drive off the dealership lot, and the ongoing costs of maintenance add up quite rapidly over time. By focussing on the market for cars that are in high demand and in low supply, this article aims to show that cars can be a fun and secure investment class for a petrolhead investor looking to preserve their capital. The key factors in choosing the right investment car will be discussed, and the market for investment cars will be compared against other more traditional asset classes. The costs and risks of this alternative investment will then be detailed, followed by some examples of how collectors' cars can provide you with a great return on investment if you play your cards right.

So, what should you look for when deciding whether a car will hold its value or even appreciate? According to the rules of economics, low production numbers help. In the car world, the lower the chance of seeing another one of your cars, the better. A low supply and a high demand will always result in a higher price, *ceteris paribus*. Most manufacturers are fully aware of this, and we are seeing more and more "limited series" models these days to take advantage of this. Cars with historical importance also tend to be very valuable to investors, especially ones with low mileage and in concours condition. This means that they are fully restored, and look the same as (or even better than) they did the day that they left the factory. Race winning cars, old Formula One cars and race cars that have been converted to be road-legal are also highly desired by collectors. One of the more recent trends is that cars which have starred in famous movies or have been owned by celebrities in the past, such as the DeLorean from *Back to the Future* or the R34 Nissan Skyline GTR from *The Fast and the Furious*, tend to skyrocket in value over time.

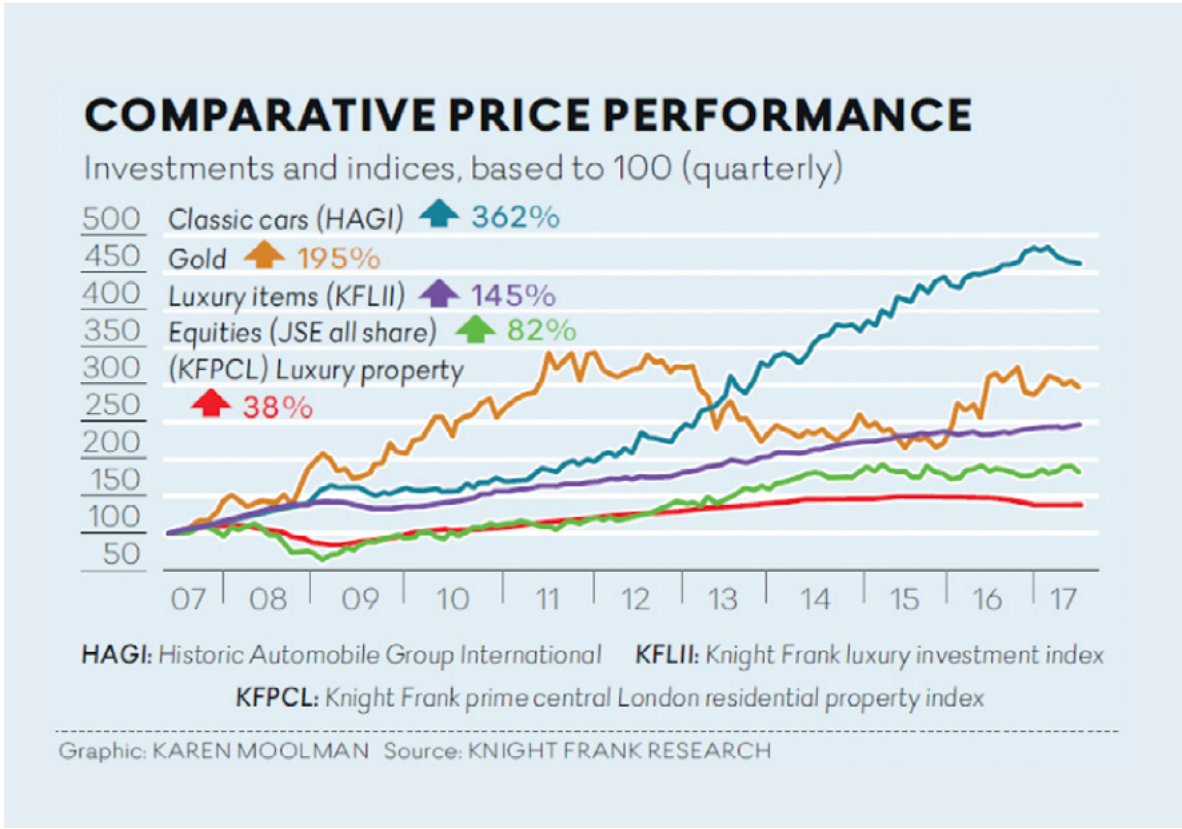
Let's now have a look at an interesting example, the legendary Ferrari 250 GTO. This was a homologation race car for the road and, over its lifespan, it competed in and won several race categories such as Le Mans, Tour De France and the Targa Florio. Bloomberg reports that only 36 of these cars were ever made, and all buyers had to be personally approved by Enzo Ferrari himself. At a purchase price of \$18,000 in 1962 (\$160,000 in today's money), two of these cars went on to break the record in

2018 for both the most expensive car ever sold at auction and the most expensive car ever sold in a private sale. A red 250 GTO was auctioned off by RM Sotheby's for a total of \$48.4m (approx. R725 million), and a silver 250 GTO was sold privately to WeatherTech founder David MacNeil for an eye-watering \$70 million (approx. R1.05 billion). In fact, an interesting observation is that seven of the top ten most expensive cars ever sold at auction just happen to be red Ferrari's from the 1950's and 1960's. That's a good fact to keep in mind next time you're out in town and feel like spending a cool couple hundred million rand.

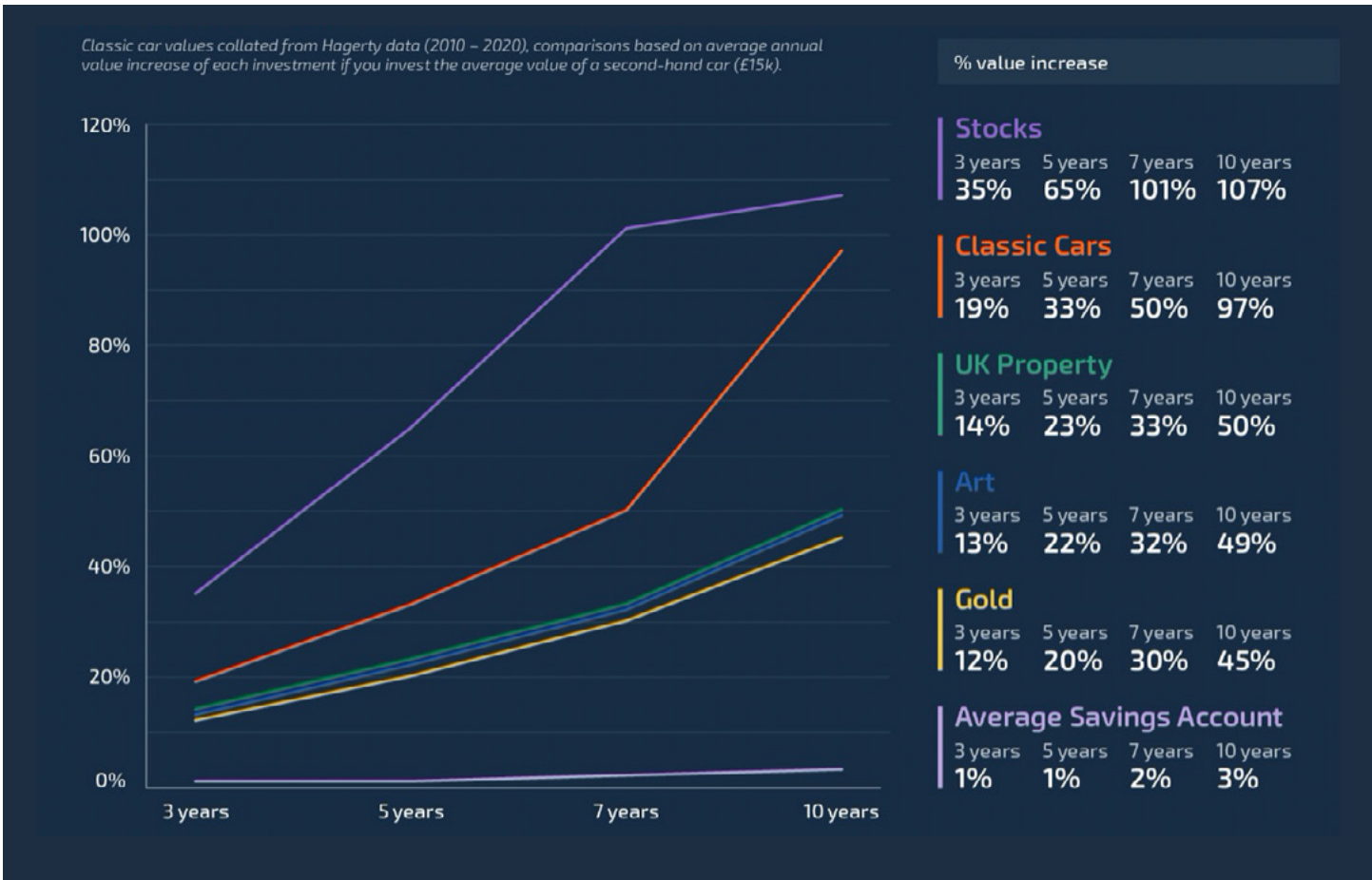
Now that we're aware of the value of some of these investment cars, let's talk about the market behind it. The HAGI Index (which stands for Historical Automobile Group International) and the Hagerty Index are institutions who use rigorous financial methodology, like the ones used for more traditional investments, to accurately track this alternative asset class. They have several indices which track the overall market of historic cars, one that tracks rare Porsches, one that tracks rare Ferraris and so on. These indices show that the classic car market has returned 362% over the past 10 years, whilst gold has returned 195% and the JSE All-Share equities index has returned just 82% over the same period of time (Source: Knight Frank Research). It is worth noting though that these indices are fairly volatile from year to year and can be distorted by one-off ludicrous sales (such as that of the 250 GTO discussed earlier).



Mostly, people see the investment car market as similar to the art or wine market; an investment for those who are passionate about the underlying asset and seek an emotional return as well as a financial return. Globally, over the past five years, the HAGI Index shows that cars have provided a return of 129%, which is much more than wine, in second place at 55%. In the longer term (over 10 years), collectible cars have generated a return of 404% compared to wine at 256%. Investment cars can also hold their value quite well during a financial crisis, as the rarity and condition of the car remains unaffected. Purchasing investment cars in foreign countries where you have an exchange rate advantage and importing them back home can also provide a currency hedge, although this may be limited by costs and regulations.



Similarly, for overseas markets, a recent graph of the Hagerty index shows that the value of classic cars tends to exceed the value of the art, property and gold market in the UK over the long term.



Of course, with any investment class, there come costs and risks. Firstly, most classic cars tend to be stored away for long periods of time, hence they may require a lot of initial and ongoing mechanical and cosmetic restoration (which can be very costly, particularly due to the lack of original parts). Since investment cars are often too rare and expensive to drive or park in public, there is also the cost of transportation and storage associated with transferring the vehicle between locations. In fact, local Cape Town business Crossley & Webb have air-conditioned glass storage facilities where investment car owners pay monthly to store their cars and to regularly maintain them on their behalf.

Obtaining an insurance quote on an investment car can be extremely expensive or nearly impossible. A popular choice is to register the car as a display piece and never drive it, but for those who like to drive their cars, owners tend to insure their car for one or two drives per year. You can imagine that there is a significant liquidity risk in holding cars as an investment, since they are often very personalised and considered an emotional

purchase. In addition, owners incur a heavy commission/consignment fee when selling a car at a global auction house, and auctions do not happen very frequently. Lastly, if you are purchasing a car with the intention of using it as an investment, there is always the risk that the future value of the car may decrease and you will make a loss on your investment, or you could be buying at the top end of a bubble only to have the value of your car depreciate from then onwards.

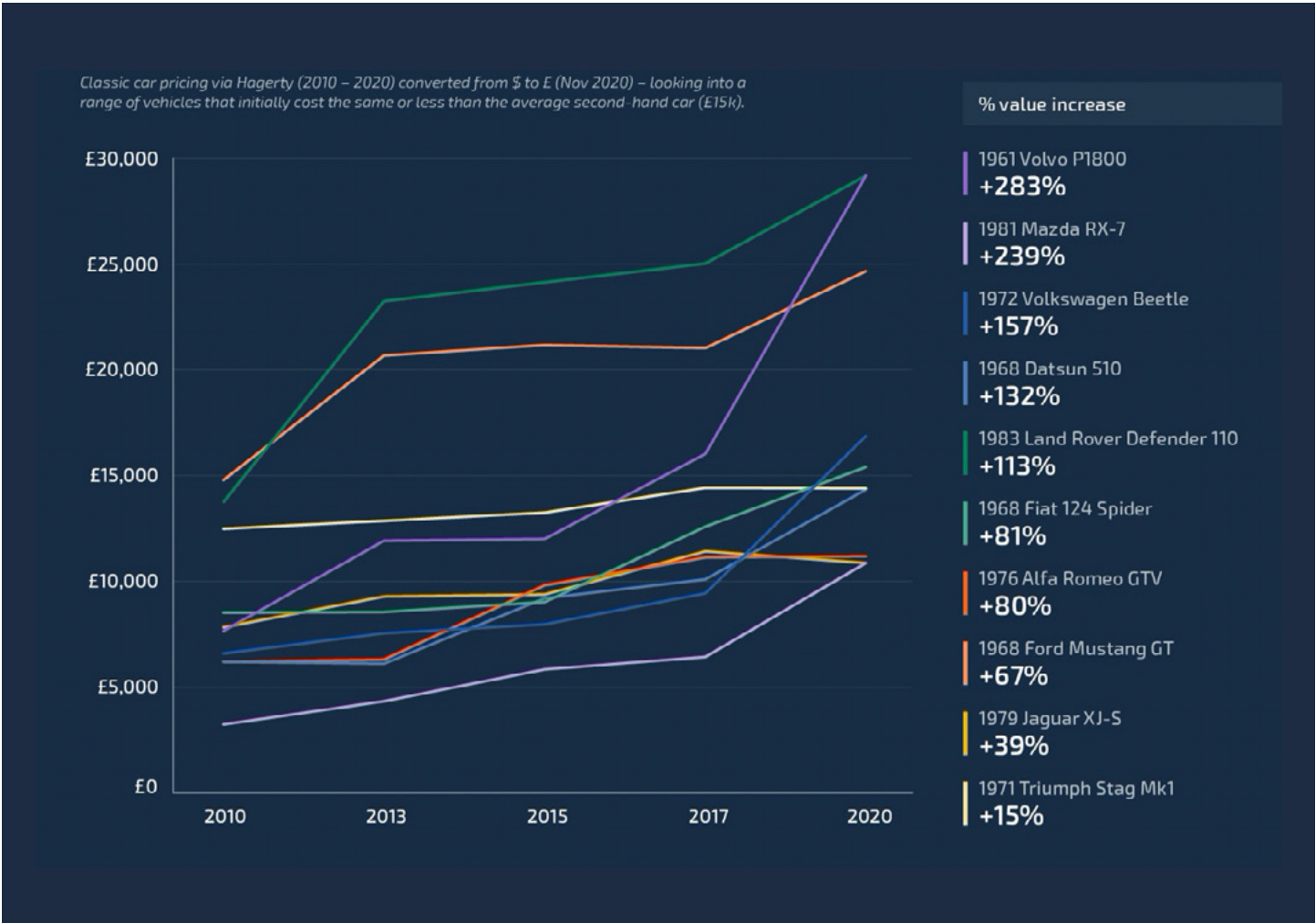
Now that we have a good background about the investment car market, let's take a look at some tips for optimal investing. Consider the Buick GNX, which is a rare highly sought-after American muscle car from the 80s. Back in 1987, you could purchase one for \$29,200. In 2019, an ultra-low mileage GNX sold for a record breaking \$200,000 (according to the North American Dealer Association). This represents a 203% return, which seems very attractive at first. Although, if you were to take that money and invest it in the S&P 500 at the time, you would have almost \$710,000 today, which is a 974% return. Even worse, a \$29,200 investment in

Microsoft Stock would be worth \$9.5 million today. As nice as this car is, it flew under the radar compared to other muscle cars such as the Mustang or Challenger, which means not many people were aware of how special this car was. American muscle cars from this period were also notoriously unreliable and poor quality. In this example, we can see that the appreciation of this car got crushed by the effect of compound interest.

A good investment choice, in my opinion, would be the 996 Porsche 911 GT3 RS. Porsches are one of the most highly valued collectors' cars in the world, with rare and special editions frequently exceeding their original sticker price by hundreds of thousands of dollars. The 996 GT3 RS was only available in white with either red or blue rims, and only 27 right hand drive versions were ever

sold out of the UK, which makes this a great investment car for South Africans. Using the same methodology as before, this 996 GT3 RS would have outperformed the S&P500 by nearly double between 2004 and 2019 (190% vs 101% return respectively). The moral of the story is that if you are buying a car as an investment, make sure to do your research and choose wisely.

We've discussed a lot about ultra expensive cars, but let us now mention that some affordable classic cars have appreciated the most in value over the past 10 years. Obviously, this depends on the mileage and overall condition of the car, but some top performers (according to the Hagerty Index) include the 1980s Land Rover Defender 110 (+113%), the 1970s Volkswagen Beetle (+157%) and the 1980s Mazda RX7 (+239%).



In conclusion, it is clear that investing in the right cars (whether they are vintage classics or new hyper-cars) often requires a large capital outlay. There are many initial and ongoing costs involved which may eclipse that of transaction costs of other asset classes. However, as with all passion investments, the high risks of the market and high costs can come with a very high reward to the investor (both financially and emotionally). Mostly if your car is Italian and red then you'll be fine, but for us regular non-billionaires, the correct choice of car and the timing of your purchase can make the biggest difference in terms of the return you get. ⚠️

CRITICAL THOUGHTS on Critical Illness

By Anja Kuys, Research and
Development Actuary, RGA

A short history

The first human heart transplant was carried out in the Groote Schuur Hospital in 1967 by a team led by Professor Christiaan Barnard. Concern for financial vulnerability and health of patients motivated Dr Marius Barnard, the brother of Christiaan Barnard, to work with the insurance industry to develop a new type of insurance cover. He argued that, as a doctor, he could repair a man physically, but only insurers can repair a patient's finances. The first critical illness (CI) insurance product was launched in South Africa in 1983.



The cost and lifestyle changes associated with a cancer diagnosis or a heart attack have long been understood to be significant, and in the 1980s, CI products only covered claims relating to cancer, heart attack, stroke and coronary artery bypass grafting (CABG).

Since their introduction in 1983, CI products have evolved significantly, in particular the number of conditions included, variety and scope of conditions covered and definitions of what constitute those conditions.

The needs, however, have remained the same:

- Cost of expensive treatments, not always covered by medical aid (health insurance)
- Loss of income due to inability to work
- Palliative care
- Modification of home
- Cost of rehabilitation
- Assistance for dependants

Homogeneity?

Individual CI insurance is offered by all major insurers and has been available in the South African market for nearly 40 years.

Although an industry movement sought to standardise the main CI conditions in the market in 2009, an extensive range of product designs remains, including:

- Non-tiered, tiered and top-up
 - *Non-tiered: benefit payments equal 100% of sum assured*
 - *Tiered: payments depend on the severity and stage of the illness with payouts varying from 5-100% of sum assured*
 - *Top-up: tiered benefits are enhanced to 100%*
- Multi-pay, which enables multiple claims or payments
- Cancer-only products
- Core (typically, heart attack, cancer, CABG and stroke)
- Comprehensive (all diseases generally accepted as critical illness)
- Term and whole of life
- Level and increasing benefits
- Standalone and accelerated

This creates challenges tracking experience for the industry due to heterogeneity within the insured books.

Pricing and trends

For actuaries, one of the major pricing challenges in critical illness businesses in South Africa is the lack of published industry tables. The last experience study by the Actuarial Society of South Africa's Continuous Statistical Committee (CSI) was published in 2011 and covered the period 2000-2003 and included 4,223 claims. This is not credible, especially if you consider how many conditions and versions are typically covered. As a result, insurance companies rely on reinsurers and data sources from the US, Asia or the UK when pricing CI products.

It should be noted that CI incidences vary significantly from country to country and from one population group to another. In South Africa, we typically see more heart-related claims due to our lifestyle and diet, as compared to the UK, and a much lower number of claims due to multiple sclerosis, for example.

There is difficulty in pricing benefits at older ages with limited experience and, in South Africa, we typically sell whole-of-life and we need to ensure that we are comfortable with this assumption. Furthermore, to price a tiered benefit adds more complexity due to progression of disease and survival probabilities.

Good actuarial practice stipulates that experience should be monitored and bases should be reviewed regularly. The following factors should all be considered when setting assumptions:

- General population trends
- Changes to current health care systems
- Medical advancements and new diagnostic techniques
- Emerging industry experience
- Addition of illnesses and new definitions
- Changes in underwriting and claims management
- Marketing and distribution of products.

Zooming in on Cancer

Cancer accounts for around 50% of all CI claims in South Africa and for females the proportion is a very significant 65%.

Cancer is a global health concern, and with over 100 different known cancers, it's challenging to keep abreast of the rapid medical advances in this area. However, given that breast, colorectal, lung and prostate cancers are the most prevalent, concentrating on these should be the key focus.

It is estimated that 30-50% of cancers could be avoided by reducing exposure to risk factors.

Bearing specific risk factors in mind, including smoking, alcohol use, unhealthy diet and low levels of physical activity, public health initiatives over the years have had a significant impact on cancer incidences. These include reduction in tobacco use, roll out of HPV vaccines (which can prevent cervical cancer) and increased awareness of benefits of healthier lifestyles, as well as encouraging screening from relatively young ages (40 for breast cancer, 45 for prostate and colorectal).

A surprisingly low 5-10% of cancers are caused by an inherited condition.

It is estimated that 1 in 8 men and 1 in 10 women will develop cancer in their lifetime, and this really highlights the importance of critical illness cover.

Treating customers fairly

Many people struggle to understand the complicated and technical language used in policy provisions, and with a list of 300 conditions, it's hard to fully appreciate what they are covered for, even with the help of a broker.

Are complex products a reason for not buying the insurance consumers need?

Where risks are highly uncertain, due to trends or a lack of historical data (e.g. new features), insurance companies will need to load to allow for this risk, perhaps making the product more expensive than it needs to be.



Impact of COVID

The pandemic affected screening, identification, and referrals for cancer. These changes will likely lead to delays in treatment and worse outcomes. In addition to cancer, delays in diagnosis have been observed for heart disease and type 2 diabetes. There is growing evidence that COVID-19 has indirectly affected the general health and well-being of the population. Alcohol consumption and substance use disorders have increased along with smoking, while physical activity has decreased. These behavior changes will lead to increases in all critical illness incidences.

On the other hand, the pandemic catalysed research and medical advances. mRNA technology will continue to be harnessed to possibly develop vaccines for personalized cancer therapy, auto immune diseases, and rare disorders. COVID-19 demonstrated that mRNA vaccines are safe and effective and should pave the way for greater trust in the technology in the future.

Looking ahead

We need to ensure that we create products with clear definitions that are easy to understand and that remain affordable and continue to meet the needs of customers.

As an insurance industry, I believe we have a role to play in educating our policyholders in reducing risk factors and advocating a healthy lifestyle. 🇿🇦

MEDICAL MALPRACTICE

A Roundup of Developments

– by Greg Whitaker

During 2021, a significant number of reports were released around the vexing problem of medical negligence in South Africa's public sector. It is the purpose of this article to summarise and comment on the key aspects of each report.



MEDICAL MALPRACTICE IN THE SOUTH AFRICAN PUBLIC SECTOR – ACTUARIAL SOCIETY OF SOUTH AFRICA

30 April 2021

The Extent of Medical Malpractice in the South African Public Sector

Figures provided by National Treasury show that the contingent liability for medico-legal claims increased from approximately R 28.6 billion for the financial year ending 31 March 2015 to approximately R 120.3 billion for the financial year ending 31 March 2021. Total claims payments from 1 April 2012 until 21 March 2021 were approximately R 10.5 billion.

For every R 1 billion in claims payments, the government could employ an additional 5,750 staff nurses at a basic salary of approximately R 14,500 per month in 2021 money terms.

The accuracy of contingent liability figures is questionable with data-related problems and liability calculation methodologies being major issues. An interrogation of the contingent liability figure in the Northern Cape revealed that it could be reduced by at least 40%. Nevertheless, even if the true total contingent liability figure is substantially lower, the current state of affairs is not sustainable.

Contributing Factors and Cerebral Palsy

There are various medical and legal reasons that give rise to medical negligence claims. Contingency fee agreements, capping contingency fees, the emergence of the litigation funding industry, the impact of patient-centric legislation, issues of collusion between various role players, allegations of unethical conduct, the use of manual filing systems and the disappearance of patient files are matters that require further investigation. Little attention has been paid to the flexibility and manipulability of the law of delict.

Much of the discussion in this report relates to claims related to cerebral palsy as these represent the vast majority of claims, by both number and amount. The medical literature highlights the complexity and difficulty in establishing causation, which is one of the five elements of delict that must be satisfied for a successful claim. The long delay between the date of the birth incident and when a claim is made (often five to 15 years) does not help either. In addition, “causation” is understood differently in statistical and legal contexts. This makes the establishment of factual causation particularly challenging as demonstrated in the case studies presented in the report. Whilst much focus is placed on using expert medical evidence to show a breach in the standard of care, it is equally if not more important to make use of experts well versed in causation.

In cerebral palsy cases, lack of foetal monitoring was proven in approximately 75% of cases, with the conclusion generally being drawn that this caused the cerebral palsy. Although birth weight is a significant risk factor for cerebral palsy, it was not considered in the majority of cases. The pool of experts providing evidence is limited resulting in courts being exposed to a limited set of ideas. Furthermore, in very few cases is contributory negligence argued, with the result that apportionment of damages in such cases is extremely rare. Little focus is placed on how many of the eight free ante-natal visits are attended by claimant mothers and the use of the Department of Health’s Road to Health chart.

CAPPING THE MONTHLY
PAYMENT FOR CARE GIVING
BY WAY OF A PUBLISHED
TARIFF IS A POSSIBLE WAY
OF CONTROLLING THESE
COSTS.

When it comes to the treatment of children with cerebral palsy there is conflicting evidence, not only of the effectiveness of therapy, but also of the optimal dosage of therapy. There is also a wide disparity in costs between various experts and between various provinces.

Recommendations related to cerebral palsy cases include:

- Improved record-keeping
- Capping the time between incident date and the date of claim
- Judicial review of the “but for” test in birth injury claims
- Better foetal monitoring
- The apportionment of damages in matters where all free ante-natal services have not been utilized
- The introduction of medical malpractice speciality courts and assessors
- The introduction of an early notification scheme for obstetric brain injury
- Greater use of placental pathology in establishing causation
- Rigorous, well-designed and objective research to establish the optimal dosage of therapy for children with cerebral palsy



Quantum

Settlement values in one anonymized province for cerebral palsy cases average around R13 million, but there have been settlements in excess of R20 million. The largest driver of cost in birth injury claims is that of future care giving. There is invariably a substantial differential between the cost of care proposed by plaintiff experts and the costs of care giving proposed by defendant experts. Capping the monthly payment for care giving by way of a published tariff is a possible way of controlling these costs.

The typical heads of damages claimed in a cerebral palsy claim are for future loss of earnings, past medical expenses, future medical expenses and general damages. Actuarial calculations are normally relied upon in calculating future loss of earnings and the capitalized value of future medical expenses. Unfortunately, information on the damages awarded is not readily available and it is recommended that it be routinely collected and captured by the Department of Health and made available for analysis.

The net discount rate is the most critical assumption an actuary makes when calculating the present value of a damages claim. In South Africa the net discount rate is not mandated by legislation or prescribed by the Actuarial Society of South Africa. Net discount rates of between 0% and 3% per annum

have typically been used for the capitalization of future medical expenses. The debate around standardising the net discount rate needs to be reopened.

Alternative Methods of 'Payment'

The "once-and-for-all rule" is a common law convention which requires that all damages flowing from a cause of action must be claimed in one court action, that is, in monetary terms as a once-off lump sum. The main advantages of this approach are that it concludes the matter and the claimant has some flexibility as to how the lump sum is spent. However, the lump sum will either be far too much (if the claimant dies early) or too little (if the claimant lives longer than expected and/or investment returns are lower than assumed).

Alternative methods of settlement have been argued for in certain cases. These include:

- The provision of care directly through the public healthcare system,
- The payment of damages claims via periodic payments to the claimant, and
- The payment directly to service providers as and when medical expenses arise.

The courts have indicated that the alternatives have merit, but as yet they have not been implemented.

One alternative that has been implemented is that of a reversionary trust whereby the lump sum awarded is paid into a trust administered for the claimant's benefit. The defendant is obliged to "top up" the fund in certain circumstances but is also entitled to a "clawback" of the residual funds in the trust on the death of the claimant. Variations of this model, such as fixing the life expectancy at 10 years, should be explored.

International Compensation Schemes

The issues facing South Africa are not unique and the systems introduced in other countries should inform the way forward for South Africa. Some countries, for example France, Japan, New Zealand and the Scandinavian countries, have introduced "no-fault" compensation schemes and their suitability for the South African context should be explored. A feature of some of the international liability systems is the capping of the period of time in which a claim must be filed and the stringent

requirements in order to successfully file a birth injury related claim in some of the “no-fault” schemes such as the Florida Birth-Related Neurological Injury Compensation Association.



THE PUBLIC HEALTH MEDICAL NEGLIGENCE CONUNDRUM – LEXIS NEXIS

18 October 2021

Causes

Various reasons are cited for medical negligence claims. These include:

- Shortages in medical personnel, hospital beds, medical equipment, and inadequate funding.
- Poor management, lack of accountability, and bad record keeping.
- Healthcare Associated Infections caused by overcrowding in hospitals, high patient-to-staff ratios, lack of isolation facilities, ageing infrastructure, inadequate environmental cleaning, inter-hospital transfer of patients with drug-resistant infections and inadequate disinfecting of medical equipment.
- Greater actualisation of constitutional rights resulting in increased access to information, transparency, and accountability through newly enacted legislation and legal and other developments.

Types of adverse events

Some of the adverse events relating to birth injuries are cited as:

- Cerebral palsy secondary to birth asphyxia, due to mismanagement of the labour process.
- Sphincters being destroyed after misdiagnosis of 3rd or 4th degree perineal tear as a second-degree tear after a normal vaginal delivery with an episiotomy.
- Foetus born with cerebral palsy following transfer from clinic and failed attempt of MacRobert's manoeuvre and increased waiting time in labour ward.

- Foetus not surviving the hypoxia after abdominal pains were medically mismanaged and resulting in foetal distress at 32 weeks gestation.
- Pulse oximeter was placed on a neonate's foot and not adequately monitored for pressure care resulting in necrosis and amputation of the right small toe.
- Severely (due to diarrhoea) dehydrated minor prematurely discharged resulting in permanent brain damage and left sided spastic hemiplegia.
- Bilirubin-induced neurological dysfunction in readmitted baby after dehydration and pyrexia following birth.

Common omissions leading to adverse events include:

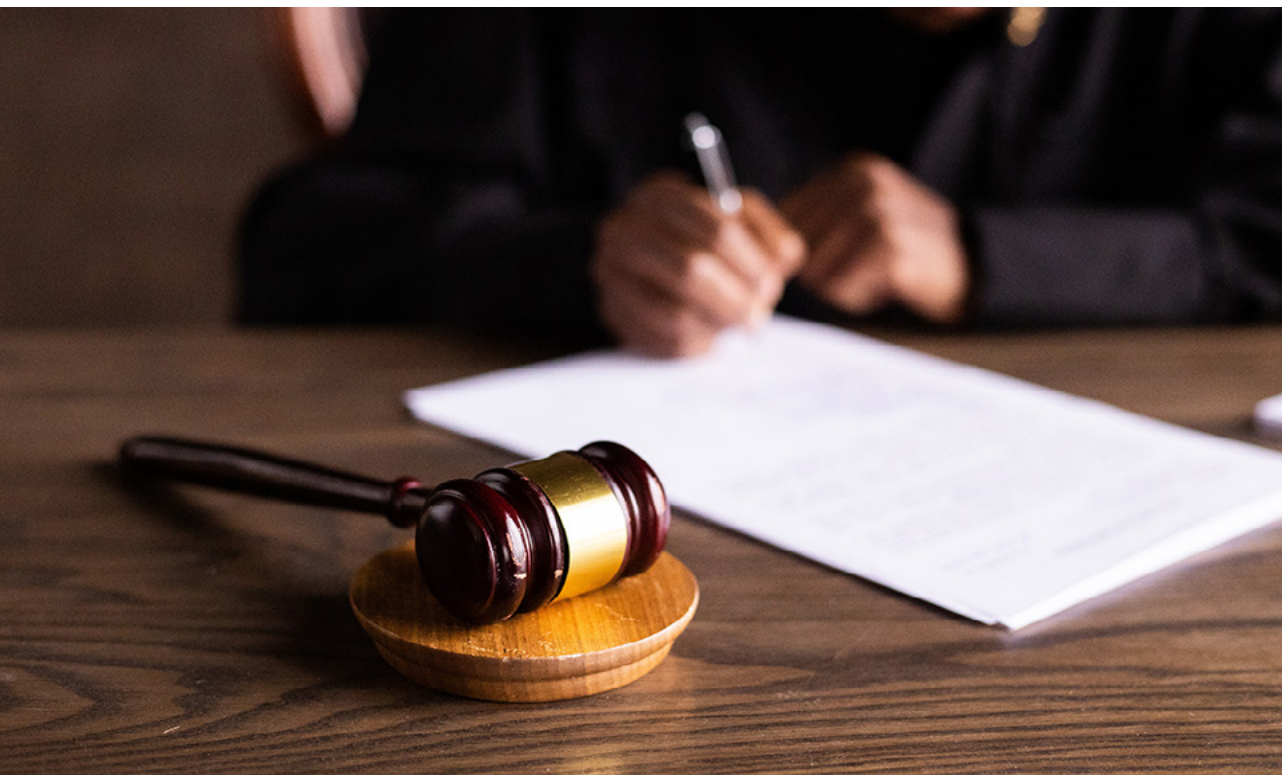
- Clinical manifestations not responded to.
- Poor monitoring.
- Failing to apply guidelines/protocols.
- Failing to give treatment as prescribed.
- Incorrect treatment.
- System failures.
- Lack of supervision.
- Lack of training.
- Lack of knowledge.

Public Health medical negligence litigation

In some public medical negligence cases, comments made by judges seem to indicate that Health MECs of Provinces are abusing litigation and the litigation process to delay the inevitable. The author notes that a disturbing phenomenon was an indication that litigation was being abused to manage the cash flow crisis created by medical negligence claims where the public health sector spent approximately R148 million in the 2018/19 financial year on litigation.

Legal obligation to render and standard of public health services

An approach that proceeds from the basis that if the cause of damages in the public health system is eliminated, the currently prejudiced patient's interests will be served and the financial consequences of negligent adverse events will disappear or at least be contained, is faced with the difficulty of paucity of patient safety incident information.



principles used to assess future damages and constitutes an attempted coercive and legally unfounded measure to sidestep the common law to lessen the payment of proven damages without legislation. Further, it essentially constructively condones serial negligently caused adverse events within the public health sector which constitute a breach of the government's constitutional duty to provide adequate and professional healthcare. It also condones the use of the consequences of such breach to justify the curtailment of a judgment creditor's common

In addition to the commonly cited professional lapses, there is the phenomenon of poor record keeping and retention of patient records which impacts on the ability of a claimant to frame his case and the public health system to mount an effective defence against claims for negligent adverse events.

Proposed solutions

Some of the proposed solutions mentioned are:

- Delaying of payments to claimants with high value claims by forcing the payment in damages in instalments or by forcing claimants with a need for future medical care to make use of public healthcare facilities – referred to as the public healthcare defence.
- Amendment of the State Liability Act 1957 (the State Liability Amendment Bill was referred back to inter alia the Departments of Health and Justice as well as National Treasury in January 2021).
- Solutions involving legal reforms (the essence of the South African Law Reform Commission report).
- Revisiting the causes of cerebral palsy (one of the main recommendations of the Actuarial Society of South Africa's report).

The author criticises the "public healthcare defence" in that it is based on purely financial and not any policy or legal considerations. He states that it ignores legal

law right to a final settlement of the judgment debt owed by the judgment debtor. Finally, it deprives the claimant of choice of where and how he/she is to be treated and does not fully take the claimant's particular needs and situation into account.

Focus should be on the victims

The author emphasizes that the focus on and apparent obsession with the financial consequences of negligent adverse events in the public health sector completely ignores the often devastating and far-reaching personal consequences of an ailing public health system for patients unable to pay for health care. In all deliberations over and measures proposed and implemented to remedy the medical negligence problem, the interests of the public health care patient should be paramount – it is a constitutional imperative.

The first step

The public health system is plagued with a variety of operational problems such as ageing infrastructure, inadequate funding, over-utilisation, poor working conditions, understaffing, ineffective management, and lack of accountability. The author states that without minimising or excusing lapses of medical professionalism in the public health sector, any proposals for and remedial action undertaken should be viewed against this backdrop.

One of the most important steps to be implemented, is the introduction of a standardised Electronic Health Record system (EHR) which integrates both patient safety incident reporting and clinical protocol management:

A framework for patient incident reporting does exist. Implementing an Electronic Health Record system will to a large extent remove the contributory factors of medical negligence claims and manage causative risks such as non-adherence to protocols. Not only will it assist in managing risk, but it has substantial benefits for patients and the quality of health care. To ensure compliance, accountability must be ensured in a way which recognises the challenges faced by medical professionals in the public health system but nonetheless ensures that negligent adverse events have behaviour-changing consequences.



DISCUSSION PAPER 154 PROJECT 141 MEDICO- LEGAL CLAIMS – SOUTH AFRICAN LAW REFORM COMMISSION

11 November 2021

Status of the Discussion Paper

Following a request from the Department of Health and the Minister of Justice and Correctional Services to investigate medico-legal claims against the government, the South African Law Reform Commission (SALRC) published a first document for public comment on 17 July 2017. The second discussion paper released on 11 November 2021 was prepared to elicit responses on the preliminary findings and proposals of the SALRC. The SALRC notes that:

It will serve as a basis for the SALRC's further deliberations in the development of a report with proposed draft legislation; therefore, the opinions, conclusions and proposals in this paper should not be regarded as the SALRC's final views. Respondents are not restricted to the issues covered in this paper and are welcome to draw other relevant matters to the SALRC's attention.

Proposals

The SALRC proposes that a system be developed that starts at the hospital when a serious adverse event occurs, through prescribed compulsory procedures to attempt early resolution, ending in compensation that provides fair restitution to the aggrieved health care user without bankrupting the public health system.

Prerequisites

The SALRC states a number of prerequisites that are critical in facilitating their proposals, namely:

- National strategy for dealing with medico-legal claims must be followed in each province.
- The Office of the State Attorney must have a strategy that dovetails with the Department of Health's national strategy.
- Dedicated medico-legal units with suitably qualified personnel must be situated in the office of each of the provincial Heads of Health.
- A uniform electronic record keeping system must be used by all provinces supported by a state-owned information technology system.
- Standardized guidelines for reporting must be used and data centralized.
- Compulsory budgeting for medico-legal litigation.
- Dedicated alternative dispute resolution team in each province.
- Introduction of patient safety measures in all provinces.
- Establishment of a dedicated national monitoring body to ensure that applicable legislation, national guidelines and the corrective measures proposed in audit reports, Office of Health Standards Compliance (OHSC) reports, government-initiated reports and other documents are implemented and applied.

Improving quality of public health care

The SALRC, as a law reform body, cannot make recommendations on the delivery of quality health care. The shortage of medical personnel, constrained budgets, inadequate health infrastructure, shortage of medical equipment, medicines and other supplies and inadequate

supervision of junior staff are all aspects that require attention.

There is a plethora of legislative provisions, regulations and guidelines under the National Health Act (NHA), as well as several reports about deficiencies in the public health care system. However, there is a distinct lack of implementation of these instruments. It seems that a number of the provincial departments of health have neither the skills nor the capacity to address the issues highlighted in the audit reports, OHSC reports and government-initiated reports.



Record keeping

It is recommended that proper record keeping systems be introduced and maintained, as proper record keeping is critical both in terms of patient care as well as evidence in litigation. It is further recommended that record keeping guidelines be developed that address the NHA provisions and related regulations, and which provide for the entire “life-cycle” of a health record. In addition, specific provisions must be made for access to health records, over and above the Promotion of Access to Information Act and the Protection of Personal Information Act.

Patient safety and patient safety incident reporting

It is recommended that current reporting guidelines be reviewed in light of the latest developments in patient safety reporting systems and the World Health Organization Guidelines on Patient Safety Incident Reporting and Learning Systems. In this way, reporting systems can be optimally structured and utilised and allows for sharing of information, while ensuring that information provided by a health worker cannot be discovered for purposes of court proceedings, and cannot be used in disciplinary proceedings against the person who made the report.

Mediation

The SALRC proposes that it should be compulsory to attempt mediation before instituting court proceedings. Parties to medico-legal proceedings will need to demonstrate to the satisfaction of the court that the matter is not capable of being fully mediated. In the event that the entire matter cannot be resolved, mediation can be used to agree on some of the issues in dispute.

Practical measures noted include introducing pre-mediation clauses in admission forms of public hospitals, establishing a list of accredited mediators in each province and requiring the state to fund medico-legal mediation when the state is a party to the proceedings.

Finally, it is crucial that the person representing the state in mediation proceedings must be able to make proposals and take decisions with financial implications or have immediate and direct access to a person with the authority to approve a proposal or take a decision. The final mediated solution should be a formal, binding contract complying with the law of contracts; alternatively, the court should be approached to approve the mediation agreement formally as a settlement agreement by order of court.

Certificate of merit

It is proposed that in order to avoid frivolous, meritless, fraudulent or abandoned claims, a certificate of merit affidavit by an accredited and suitably qualified medical practitioner form part of the papers when action is instituted for damages based on medical negligence.

Redress

For smaller medical negligence claims, the SALRC proposes adopting an administration compensation system, based on the Welsh redress system, where redress comprises:

- Making an offer of compensation in satisfaction of any right to bring civil proceedings in respect of a qualifying liability.
- Giving an explanation.
- Apologizing in writing.
- Reporting on the action taken to prevent similar cases.

Pre-action protocol

The SALRC recommends implementing a pre-action protocol similar to the Pre-Action Protocol for the Resolution of Clinical Disputes in the United Kingdom, which will require amendments to civil procedure and court rules. This will essentially introduce a further step in the civil process before instituting formal court proceedings.

Litigation

It is recommended that the following changes be made to the litigation process:

- Civil process changes be introduced to limit delays and expedite proceedings: ensuring that requirements such as filing a certificate of merit affidavit, seeking redress where appropriate or complying with the pre-action protocol must take place before a case can proceed to a court hearing.
- Civil procedure be amended to allow a summons to lapse if not timeously acted upon, improve pre-trial procedures and court case flow and management to expedite and simplify the finalisation of claims, for example earlier exchange of information, expert notices, summaries and witness statements; as well

as early expert meetings and pre-trial conferences.

- Elements of the inquisitorial system (similar to existing provisions of the Criminal Procedure Act, 1977) be introduced into civil proceedings to allow parties to agree on certain facts or events before the formal court hearing commences.
- The use of joint expert witnesses.
- The Superior Courts Act 10 of 2013 and the Uniform Rules of Courts be amended to provide for the appointment of specialist assessors on application of either of the parties, or if the court is of the view that it would be in the interests of justice, or specifically when the case is of a complex nature involving highly technical expert evidence.

Compensation

The SALRC is of the view that a no-fault compensation system is not a viable solution to South Africa's medico-legal claims crisis.

The SALRC proposes that compensation should be awarded in the form of a structured settlement – with part of the compensation paid in a lump sum, part of the compensation paid as periodic payments, and part of the compensation provided as payments “in kind” by means of the delivery of services – allowing a combination of these methods and determining the ratio of one aspect in comparison to another aspect by considering the circumstances of each particular case.

Further aspects dealt with include changing the manner in which future loss of income is calculated – in particular it is proposed that calculations of future loss of income be premised on a structured format or guideline based on the average national income, or the average income of the area where the claimant lives.

In addition, it is mentioned that the capping of constitutional and general damages (non-pecuniary damages) may be necessary so as to avoid becoming a punitive system. Further, it is proposed that a schedule of benefits for specific injuries or conditions be compiled that can be adjusted annually or that could be linked to an index of average values for automatic adjustment every year.

Upskilling of nursing staff

South Africa's public health system is heavily reliant on nurses and the following proposals are made in this regard:

- Review the training of nurses to reconsider the curriculum, practical training, quality of training.
- Adequate nursing numbers should be determined and every effort made to fill vacant posts.
- Interventions are required to address issues with oversight of junior nurses, the administrative burden on nurses and attitudes of nursing staff towards patients.
- Consider re-establishing state-run nursing colleges that were closed in the mid-1990s and re-introduce vocational training of nurses.

Additional measures

Some additional measures proposed include:

- Amending the Contingency Fees Act, 1997 to provide for a sliding scale for the determination of contingency fees in relation to the size of a compensation award.
- The introduction of a "Good Samaritan" law exempting a medical practitioner acting in an emergency situation from negligence claims as long as certain conditions are complied with.
- Addressing concerns about the length of time it is taking the Nursing Council to review the training and qualifications of nurses.

Public and Private sector partnerships

The SALRC notes that:

Several private entities, hospital groups, medical professionals, insurance companies and so forth offered to assist the public health sector. Most of the offers for assistance made by persons and organisations in the private health sector appear to be well-intentioned, intended to aid the public health sector to benefit the health sector as a whole. However, the goodwill and offers of assistance and cooperation from the private health sector have not been taken up in full.

THE BEST LEGISLATION
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CONCLUSION

Medical malpractice in the South African public sector has far reaching financial and other impacts. A better system is required. Key issues have been identified and explored, and recommendations have been made. These now need to be debated amongst the relevant stakeholders and decisions taken on the way forward. As noted by the SALRC:

It must be stated emphatically that legislative intervention alone cannot address the myriad of challenges faced by the public health sector. As is often said, there is no claim without negligence. Legislation can address procedure, establish bodies to deal with some issues, create interventions that do not currently exist, alter the method and timing of compensation and so forth; but legislation cannot address systemic problems with leadership, governance, management, budgeting and procurement, quality of care, lack of skills, personnel shortages, training, attitudes of staff and maintenance of facilities and equipment. The best legislation in the world will not make any difference unless it is applied, implemented, complied with and monitored. ⚠️

INSIGHTS INTO IFRS17 thus far...

For many insurers the transition date has passed and soon IFRS 17 reporting will be in full effect. The operational strain of implementing the standard has been, and continues to be, severe. It has required a rethink of the design and process required in managing data, actuarial and financial modelling and reporting. This has created the opportunity for streamlining processes, supported by a new systems architecture; however, for most programmes the focus has been on producing compliant results with sound design decisions and an accurate transition narrative. While this 'minimum compliance' approach has and continues to be necessary given the scale of changes required, a bigger picture perspective of the design, architecture and stakeholder communication opportunities of implementing the standard should not be missed.

The requirements of IFRS 17 translate into more consistent, granular income statement reporting for insurance contracts, which results from more detailed data being used in the financial reporting process. Consequently, we can expect that IFRS metrics reported for insurance contracts can provide deeper insights into the performance of these contracts. Both internal and external stakeholders will be able to use these new IFRS metrics to assess the performance of the insurer, both in line with their strategy, and relative to other insurers. Because of this, it is important for insurers to revisit the performance metrics that they currently use. They need to examine how the new information that IFRS 17 introduces can be used to replace some of the current metrics, and also create new metrics that can give additional insight into the performance of the business.

Data flows and reporting systems are being built and tested now. Insurers need to be aware of the granularity needed, or the additional IFRS 17 performance metrics that are required, once IFRS 17 has been implemented. This will include deciding what information will flow out of the IFRS 17 subledger solution and what information will be sourced from other elements of the solution. Data visualisation, dashboarding and automation tools are key elements to achieve this.

The output requirements, actuarial models and the subledger should no longer be viewed as those required for minimum regulatory reporting compliance. Rather, these systems will be a valuable source of management information for generating analytics and insight on insurance contract performance.

Addressing the requirements now, as part of an insurer's transition strategy and IFRS 17 build, will ensure key business information can be sourced from core financial reporting systems. For example, if the product development team needs IFRS performance by product segment, but an IFRS 17 "portfolio" spans more than one product segment, an approach to track and calculate IFRS metrics at a more granular level will be required.

Three key performance areas

Insurers are looking to focus on three key areas within their performance strategy: growth, financial resilience and value generation. The impact of IFRS 17 for each of these are discussed below. The impact that these areas will have on the insurer's performance measurement and management capability need to be assessed.

The CSM and the Risk Adjustment have a large impact on the emergence of insurers' IFRS profits. Performance measures that give insight as to the source of earning growth, the drivers of that growth through time and its sustainability will ensure that management act on insights that will improve their competitive position.

These insights need to be informed by information at a higher level of granularity or cumulative results rather than reported results. For example, product development and pricing teams may analyse trends in profitability by product and year sold, or adjust for loss component timing effects.

The analysis of data will also depend on the business requirements; there may be a need to produce results at a distribution channel rather than portfolio level. This needs to be built into the IFRS 17 reporting solution. Beyond this, adjustments might be made to standardise results to compare products or to market benchmarks.

IFRS 17 will give a more meaningful insurance service result when compared to IFRS 4, as under IFRS 17 insurance revenue is more closely aligned to insurance service expenses. As insurers transition to IFRS 17, the resulting insurance profit metrics will become more comparable across the industry. Key metrics such as the loss ratio, expense ratio and combined ratio will be much more meaningful to analysts and shareholders than they would have been under IFRS 4, particularly for longer duration contracts often found in life insurers. We believe that IFRS 17 might change the use of the current Analysis of (IFRS) Surplus (AoS) that is performed by many life insurance companies. The IFRS 17 Analysis of Change (AoC) of actuarial liabilities provides many of the same insights. This is through a combination of the insurance result, changes in the CSM estimates and experience variances related to future service. However, IFRS 17 disclosures do not require a detailed source of

earning analysis, and to get this from the AoC will mean that granularity of step changes of the AoC needs to be designed into the IFRS 17 reporting solution.

The presentation and disclosures under IFRS 17 will be a source of additional information for the users of financial statements. With the disclosure of both actual and expected finance results, asset/liability mismatches will be much more apparent. Decisions on performance measurement should be made in light of any changes that are made to any revised balance sheet management approach under IFRS 17.

Finally, reinsurance is separately measured and reported under IFRS 17. Reporting on financial performance of reinsurance decisions will need insurers to enhance their reinsurance reporting dashboards.

Insurers will need to decide on measures which signal the ability to pay dividends. For example, a metric such as the ratio of the actual CSM amortisation to expected CSM amortisation will help management communicate their ability to achieve forecasted profit recognition. Insurers will need to decide on the role that solvency, IFRS and embedded value metrics play in assessing performance of their insurance book. Embedded value is a particularly key topic, and one which needs careful consideration. The CSM as a mechanism to derive the VIF and the RA as an adjustment for risk lend the thinking to MCEV-type principles. Thinking through the interactions and overlap with SAM results and communicating these results has the potential to stitch the narrative of performance together in a much more integrated way than under current IFRS 4.

Looking forward

We have seen some global instances where those who started communicating their IFRS 17 impacts have been questioned by the market if their analysis is not well understood. As we move along the 2022 reporting timeline, we expect communications to move from qualitative to quantitative. Clear communication of results and impacts will help avoid the complexity discount that could result from IFRS 17, making our market more efficient, as well as satisfying investors' expectations from the effort required by IFRS 17. 

Taking **ACTUARIAL BANKING TO THE WORLD**

INTRODUCTION

Banking has been developing as a practice area for actuaries over the past two decades. The momentum has accelerated during the past decade, with the Actuarial Society of South Africa (ASSA) leading the world in recognising banking as an area of practice for actuaries in 2009, establishing a Banking Committee in 2010, and introducing a Banking Fellowship subject in 2015.



Work on this Banking subject - a first in the world - was led by Michael Tichareva as Chair of the ASSA Banking Committee at the time.

Towards the end of 2021, revamped Banking courses, split between Principles and Applications subjects, were launched in a series of presentations that were held jointly by ASSA, the Institute and Faculty of Actuaries (IFoA) and the International Actuarial Association (IAA), aimed at various geographic regions. The new courses are to be offered as Banking Fellowship courses to ASSA and IFoA members globally, and as a Certificate in Banking Practice to members of actuarial bodies other than ASSA and the IFoA. Work on the revamped Banking courses was led by Kudzai Chigiji as Chair of the ASSA Banking Committee, supported by ASSA and IFoA members.

This article gives a summary of how the banking practice initiatives have been progressing, including the launch of the revamped banking subjects.

THE ROLE OF BANKING

Banking is a large part of financial services. Data for the United States suggests that banking is at least as large as insurance. For some countries, market capitalisations point to banking being larger than insurance.

Banking is diversified. It includes central banks, investment banks, commercial banks (retail and corporate), retail banks (personal and small business) and community banks. It also includes new banks, including fintechs and non-banks operating in areas such as payments.

Banking is central to every economy. By taking deposits, making loans and enabling payments, banks support economic growth. However, banks' performance varies over economic cycles, with higher credit losses expected in periods of recession. Indeed, banks can contribute to feedback loops. For example, easy lending can add to asset bubbles, while tight lending can exacerbate recessionary pressures.

Banking is not so different from insurance. The process for approving bank loans is similar to that for underwriting insurance risks, while the quantification of provisions for expected credit losses is similar to the quantification of reserves for claims. There are similarities in the regulatory frameworks for banks and insurance. For example, both banks and insurers must hold sufficient capital, and a bank's Internal Capital Adequacy Assessment Process (ICAAP) is similar to an insurer's Own Risk and Solvency Assessment (ORSA).

OVERVIEW OF BANKING

Commercial banking is quite simple. The main component of a bank's liabilities is deposits made by personal and business customers. Its liabilities also include capital, to cover losses that may arise, and other liabilities. The main component of a bank's assets is loans to personal and business customers. Its assets also include liquid assets, to finance possible withdrawals of deposits, and other assets, including securities held. The bank's main risks are credit risks on its loans, market risk on securities held, and operational risk across its activities.

There are, of course, other risks in banking. For example, as well as credit risk on loans, banks may have counterparty credit risk arising from derivative transactions, and credit concentration risk arising from lending to individual customers, industrial sectors or geographic areas. As well as market risk on their trading book, where assets and liabilities have to be marked to market, banks have to consider interest rate risk in the banking book, where assets and liabilities are regarded as being held to maturity and do not have to be marked to market. In addition to risks such as these, all banks have to consider systemic risk, the importance of which was highlighted in the banking crisis of 2008, when the failure of Lehman Brothers might have been followed by the failures of more banks had they not been supported by injections of public funds.

ROLES FOR ACTUARIES IN BANKING

Large banks are usually organised in customer-facing business units, such as retail banking, corporate banking and investment banking, with central functions such as Finance, Risk and Treasury. An obvious area for actuaries in banking is the Risk function. However, actuaries in banking work in many other areas, from strategy to product pricing to managerial roles.

For actuaries interested in banking, the challenge may be to get a job in banking in the first place. The job interview is likely to focus on "What skills can you bring?" rather than "What actuarial exams have you passed?". This suggests that there are two alternative routes into banking.

The first route is to build on existing skills and experience by transferring to the equivalent area in banking. For example, actuaries experienced in pricing for claims risk in insurance might move to pricing for credit losses in banking, while actuaries experienced in quantifying reserves for claims in insurance might move to quantifying expected credit losses in banking. Risk model validation and asset-liability management are areas where many actuaries have skills and experience. Actuaries who have worked on ORSAs for insurers could move to working on ICAAPs for banks.

The second route is to help banks to address current issues. In these areas, barriers to entry are lower, and banks may be looking for people with appropriate skills and experience. Examples of such areas are discussed further below.

One obvious area is gathering and using data in retail banking, to support both customer-facing activities and risk management. Through current accounts and credit cards, banks gather large amounts of data. Open APIs and machine learning mean that banks - both new fintech banks and large established banks - are looking to build and make use of large databases.

A second obvious area is climate change stress testing, where regulators are asking banks to assess their physical and transition risks over 30 years - longer than

has been normal in banks' stress testing exercises, but normal in life insurance and pensions.

A third but less obvious area is the quantification of 'non-financial risk', that is, risks other than credit risk and market risk. Regulators are encouraging banks to focus on risks such as conduct risk, cyber risk and IT risk, where loss events are infrequent but where losses can be large. Actuaries could build on their relevant skills and play a role in this area.

IT'S BEEN A JOURNEY

During the 1980s and 1990s, some actuaries worked in investment banking, as markets in derivative products were expanding. Around that time, a number of banks in various countries embarked on business re-engineering programmes, changing their organisation from branch-based and regional to customer-facing business units and central functions. Banks were looking for people with skills and experience for new roles, and a number of actuaries moved into commercial banking - but their numbers were limited.

During the 2000s, increasing numbers of actuaries moved into banking in South Africa and Australia. From around 2010, there was in ASSA ongoing discussion about the possibility of a Banking Fellowship exam for actuaries. After a lot of work, led by Michael Tichareva, Pravin Burra, the late Garth Griffin, the ASSA Banking Committee and the ASSA Council, and supported by Professor Moorad Choudhry and others, the ASSA Banking Fellowship Applications subject was launched in 2015. Since then, the proportion of students doing the Banking Fellowship exam has increased to about the same as the proportion doing the Health Fellowship exam, and higher than those doing the Pensions Fellowship exam. The number of ASSA members working in banking roles now amounts to around 15%.

In the UK, the IFoA had also been considering the possibility of Banking exams for actuaries. In 2020, the IFoA established a Working Party, led by Dick Rae, to consider roles that actuaries might fill in banking and to make recommendations about Banking Fellowship exams for actuaries. The Working Party recommended working with ASSA, building on the ASSA F206 Banking

subject. The IFoA accepted this recommendation, subject to the course being made international and split into a Principles course and an Applications/Advanced course. During the remainder of 2020, the syllabi were prepared and approved by both ASSA and the IFoA. Then, during 2021, a joint ASSA and IFoA team led by Kudzai Chigiji worked on the chapters for the Principles and Applications/Advanced courses, borrowing from the ASSA F206 Banking material, and introducing new material and concepts.

THE REVAMPED BANKING COURSES

The courses cover five key elements of banking management, being credit risk, market risk, operational risk, capital and liquidity. The Principles course focuses on measurement and the Applications/Advanced course focuses on management. The Principles course also includes chapters covering an overview of banking (including a glossary of banking terms), banking regulations and banking risk management, and a chapter on product pricing, while the Applications/Advanced course also includes chapters on Treasury, governance and strategy.

Within the Principles course, the product pricing chapter explains how familiar discounted cashflow methodologies can be used to price bank loans. Deposit pricing is normally based on analyses of price elasticity.

The credit risk measurement chapter covers the quantification of provisions for expected credit losses under the accounting standard IFRS 9 and the quantification of capital requirements for credit risk, using either the standardised approach that is prescribed in the Basel regulations or banks' own internal models, where key inputs are probability of default (PD), exposure at default (EAD) and loss given default (LGD).

The liquidity risk measurement chapter explains the key metric for liquidity, the Liquidity Coverage Ratio. Banks must hold sufficient high quality liquid assets (as defined in the Basel regulations) to finance their expected outflow of deposits over a 30-day period of liquidity stress.

Within the Applications/Advanced course, the Treasury management chapter covers strategic and tactical governance of a bank's balance sheet and liquidity requirements, balance sheet management and liaising with business units.

The capital management chapter covers the assessment of a bank's capital adequacy, allowing for minimum capital requirements and capital buffers as required by the Basel regulations, and additional capital requirements and capital buffers that may be required by national regulators. This chapter also covers the capital adequacy regulatory submission known as the ICAAP.

The strategy chapter covers the annual strategic planning process, leading to a bank's strategy being set by its board, responses to opportunities and threats that arise between annual reviews, and consideration of possible mergers and acquisitions. It also covers some current strategic issues.

CONCLUSION

In view of these developments, we believe that the involvement of actuaries in banking will continue to increase, with the actuarial profession playing a critical role in addressing both the supply side and the demand side through various initiatives. Various forums within ASSA, the IFoA and the IAA intend to continue working jointly in developing banking as a practice area for actuaries globally. 

Iain Allan

FFA, Deputy Chair of the IAA Banking Virtual Forum

Michael Tichareva

FASSA, FIA, Chair of the IAA Banking Virtual Forum

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NON-COMMUNICABLE BUT STILL SPREADING

The state of non-communicable diseases in South Africa and its relevance for the insurance industry

- Antonia Roth¹, Emma Finestone¹ and Jodi Wishnia¹

¹Percept Actuaries and Consultants

Introduction

Non-communicable diseases (NCDs) are becoming a rising burden globally, including in low- and middle-income countries (LMICs). NCD is a catch-all term for diseases which are not transmissible from one person to another (examples include diabetes and depression).¹ While NCDs can and do result in death, the most immediate societal challenge is the morbidity burden, which impairs functioning and creates a reliance on the health sector for ongoing care.² It is imperative to explain, explore and quantify the current needs of our population, how these may change going forward and the financial ramifications of caring for an ageing and more sickly population.

Drivers of NCDs

To understand the increasing NCD burden, the combination of both individual and system-level risk factors that give rise to NCDs needs to be understood. The four main individual risk factors driving NCDs are: tobacco use, harmful alcohol use, unhealthy diets, and physical inactivity.³ These drivers, however, are influenced by systemic factors beyond the individual, such as poverty, access to healthy food options and workplace standards (e.g. tobacco-free workplaces).⁴ The way these drivers affect and apply to different ages and genders, across different geographical regions, eventually paints a picture of a complex mix of environmental, socio-economic and lifestyle factors that impact the non-communicable burden of disease in South Africa.

One of the key components when understanding NCD drivers is ageing. The risk of NCDs increases with age, owing to several underlying physiological mechanisms that occur with ageing.^{5,6} Ageing also compounds the impact of NCDs, especially through multimorbidity. Elderly patients often face frailty, greater blood pressure variability and cognitive or functional impairment which complicates the treatment of NCDs.⁷ Biological differences (sex) and gender norms are another key driver for the development and severity of NCDs. There are biological precursors that can make someone

more susceptible to certain NCDs, creating a direct relationship between sex and NCDs.⁸ Gender, which is the way someone identifies in society and which can be different from their biological sex, also has a direct relationship with NCDs.^{9,10} Women tend to have higher levels of exposure to NCD risk factors, owing to their caregiving responsibilities, and men are often unable or unwilling to seek out healthcare when needed because of gender norms around masculinity.¹⁰

Another predictor of NCD burden, and health in general, is geography. Developing countries are disproportionately affected by NCDs, with 86% of NCD-related premature deaths occurring in LMICs.¹¹

South Africa, particularly, faces severe disparities between geographic regions (both across and within provinces), largely as a result of apartheid.¹² These disparities accentuate the intersection of geography, poverty, and access to health services, and therefore have implications for NCD risk.¹³ NCD burden tends to cluster in households.¹⁴ Households often share hereditary, environmental and individual risks, leading to adults in one household experiencing similar conditions.

The overlapping of risk factors across NCDs translates to high levels of comorbidity, which is compounded by the fact that many of these diseases are associated with one another in a variety of ways. This includes comorbidity between mental and physical illnesses. The relationship between mental and physical health is bidirectional: those with mental disorders are more likely to suffer from physical disorders and those with physical disorders are also more likely to suffer from mental disorders.³ Subsequently, the majority of those with either a mental disorder or another NCD, have a co-morbidity.¹⁵

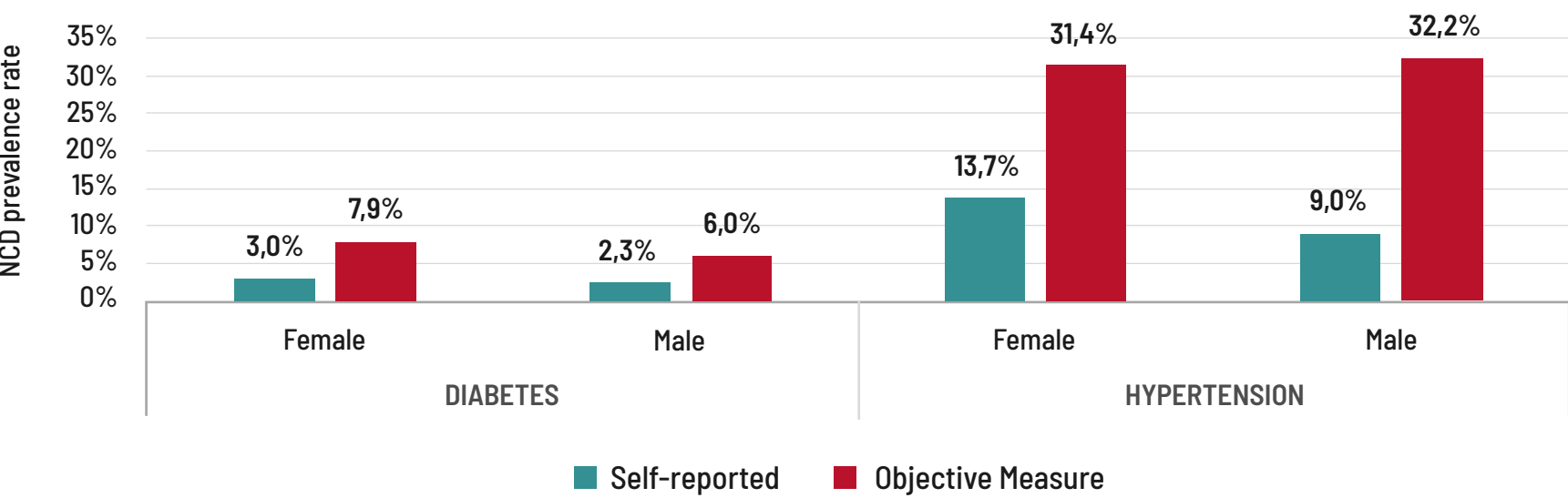
The NCD burden in South Africa is also driven and exacerbated by the high prevalence of HIV in the country.¹⁶ Owing to wide-spread access to antiretroviral therapy (ART), people living with HIV are living longer¹⁷ and, therefore, experiencing the diseases associated with older age (like NCDs).¹⁸ Additionally, the HI virus itself,¹⁹ as well as prolonged exposure to the ART are both associated with the development of NCDs and NCD risk factors.^{17,20-23}

NCD burden of disease in South Africa

The current burden of NCDs in South Africa is difficult to accurately quantify given that there is very little routine data collected on NCDs in the public sector. Even for cancer, which is a reportable condition²⁴, the quality of data is poor and incomplete. In addition to this, a large proportion of the NCD burden is undiagnosed. This is

evident when comparing prevalence based on self-reported data to objective measures of disease (such as blood pressure measurements for hypertension in the National Income Dynamics Survey [NiDS]²⁵ and Demographic and Health Survey [DHS]²⁶ and blood sugar tests for diabetes in the DHS). Objective disease measures in household surveys indicate 2-3 times higher prevalence of diabetes and hypertension compared to the self-reported measures of these diseases (Figure 1).^{4,5}

Figure 1: Age standardised diabetes and hypertension prevalence rates, as per self-reported and objective disease measures (Own analysis, DHS 2016)



Medical scheme data can also be used to estimate the prevalence of NCDs (Figure 2). However, the private sector data only includes medical scheme members who have claims that are associated with an NCD, or who are registered on a disease-management programme for an NCD that is included as a part of the Chronic Disease List (CDL). It is unlikely that this truly reflects the entire medical scheme population with NCDs, as some members may choose not to claim for certain aspects of their healthcare (associated with NCDs) or not to register for a disease management programme, for a variety of reasons. Additionally, not all NCDs are on the CDL, which means that the level of reporting on claims for these diseases is not standardised.

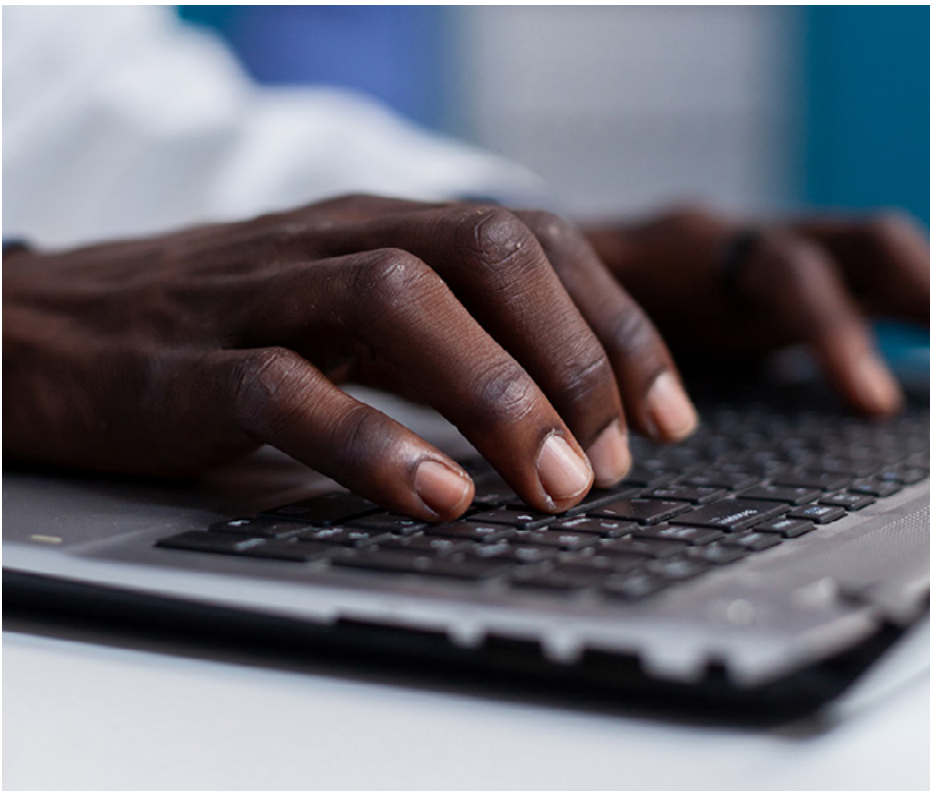
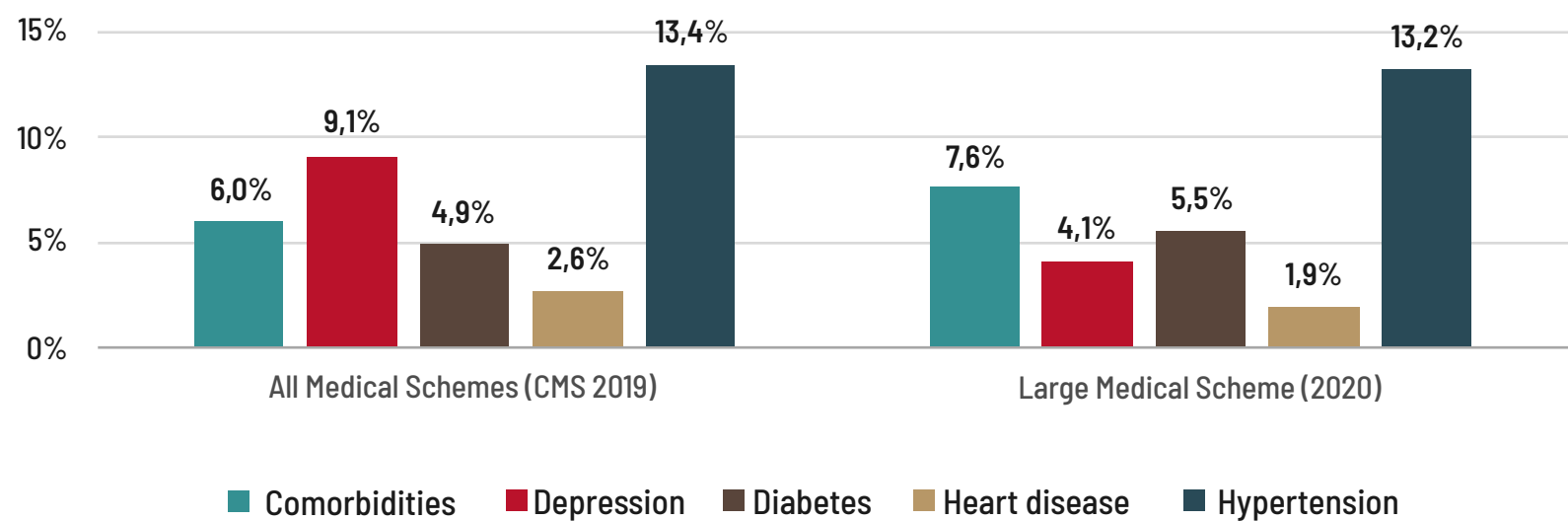


Figure 2: Age standardised NCD prevalence rates (Own analysis, Council for Medical Schemes [CMS] Annual Report 2019/2027 and Medical Scheme data)



Looking ahead: modelling the future burden of NCDs

The Percept NCD model forecasts the annual prevalence of diabetes, depression, heart disease and hypertension, as well as the prevalence of individuals with more than one NCD (referred to as a co-morbidity), from 2019 to 2040. Prevalence (the total number of existing cases of disease at a given point in time) is the most useful measure for NCDs because NCDs are typically lifelong conditions that require ongoing treatment. Additionally, the annual incidence (number of new cases each year) of cancer is forecasted. Cancer incidence, as opposed to prevalence, is used owing to various data constraints (death and remission data at a patient level would be required to estimate prevalence), and is further supported by the fact that the burden of cancer on the health system is predominantly attributable to active cancer (and is much lower in individuals who are in remission), which means that understanding the incidence of cancer more accurately reflects the implications of cancer as an NCD on the health system.

Methods

For each disease, the annual incidence or prevalence projections (model results) from 2019 to 2040 are based on a weighted average of forecasted age and sex specific incidence or prevalence rates, from each of the available data sources for that disease. The weighted average incidence or prevalence rates in a given year are then applied to the relevant forecasted population sub-groups (age and sex specific). Separate weighted averages are applied to the public and private sector populations, given the differences in socio-economic status, health seeking behaviour and demographics in these two sectors.

Estimates of population size, disaggregated by age and sex are drawn from the Thembisa Model.²⁸ Prevalence forecasts in the model are based on data from the DHS, NiDS, CMS and data from a large medical scheme. Incidence forecasts in the model are based on data from the National Cancer Registry²⁹ and Discovery Health Medical Scheme. A weighted average of the various data sources was used for each of these rates with the weights of data sources being adjusted for the limitations of the various data sources, and their applicability to the private or public sector respectively. Scenario analysis was carried out to analyse the impact of different weightings of the various data sources.

Annual prevalence rates (forecasted from 2019 to 2040) are based on the assumption that there is no change in the annual prevalence rate per risk cell over the forecasting period (i.e. the proportion of the population who have an NCD stays constant overtime). The model therefore projects population-level prevalence due only to demographic change. This is because insufficient historical data are available to accurately estimate the historical trends in the annual rate of change in NCD prevalence (for comorbidities, depression, diabetes, heart disease and hypertension) within each risk cell. This is, however, unlikely to be an accurate representation of changes in prevalence over time. Additional scenario analysis was therefore carried out to estimate the impact of a constant increase in the annual prevalence rate on model results.

For the cancer incidence forecasting, it is assumed that trends in cancer incidence observed in historical data are representative of future trends in cancer incidence. Annual incidence rates (forecasted from 2019 to 2040) are based on the assumption that the annual change in the incidence rate remains constant over the forecasting

period. The annual change in the incidence rate of cancer is estimated using historical data (separately for each data source).

Model results

Under the assumption that there is no change in the annual (per risk cell) prevalence rate over the forecasting period (i.e. the proportion of the population who have an NCD stays constant over time), model forecasts show that the population prevalence of depression, diabetes, heart disease and comorbidity, increase between 2019 and 2040 (Figure 3). This increase in prevalence is explained by demographic changes only, and therefore serves as a lower-bound estimate of the expected burden of disease. Of these NCDs, the prevalence of heart disease is increasing at the fastest rate over this period, with 1.74 times as many cases in 2040 compared to 2019, followed by comorbidities, with 1.6 times as many cases in 2040 compared to 2019 ().

Figure 3: Forecasted NCD prevalence 2019-2040 (Percept NCD Model, 2021)

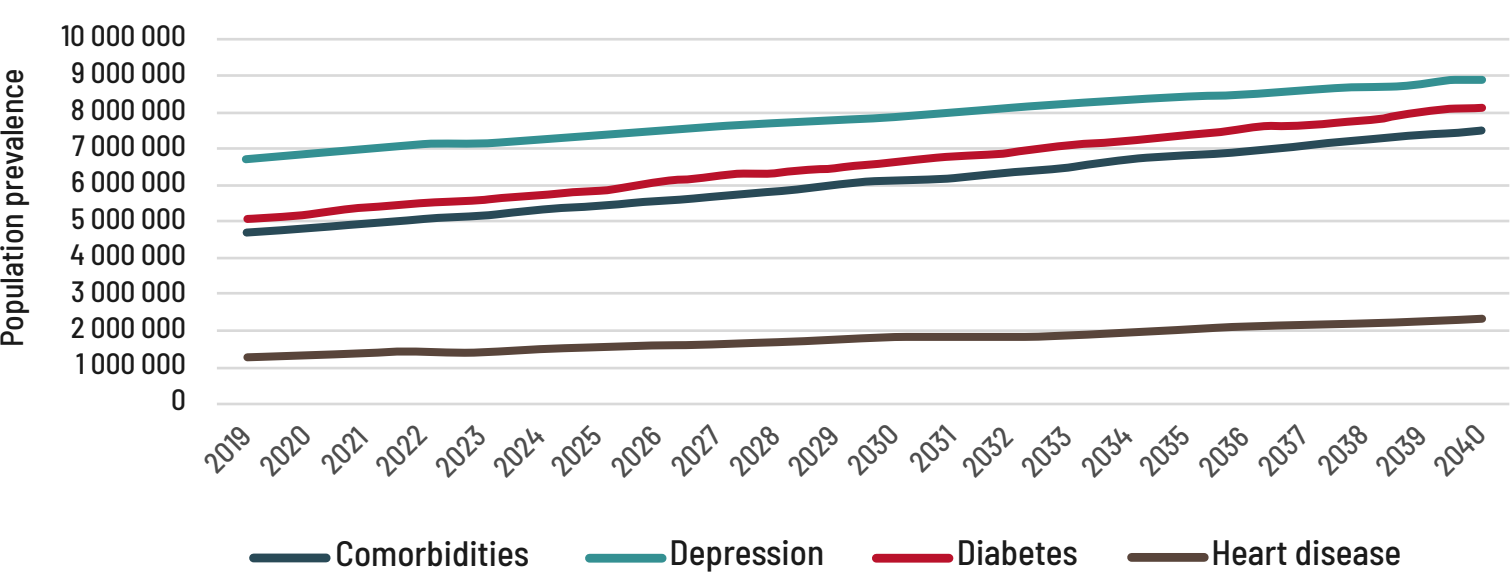
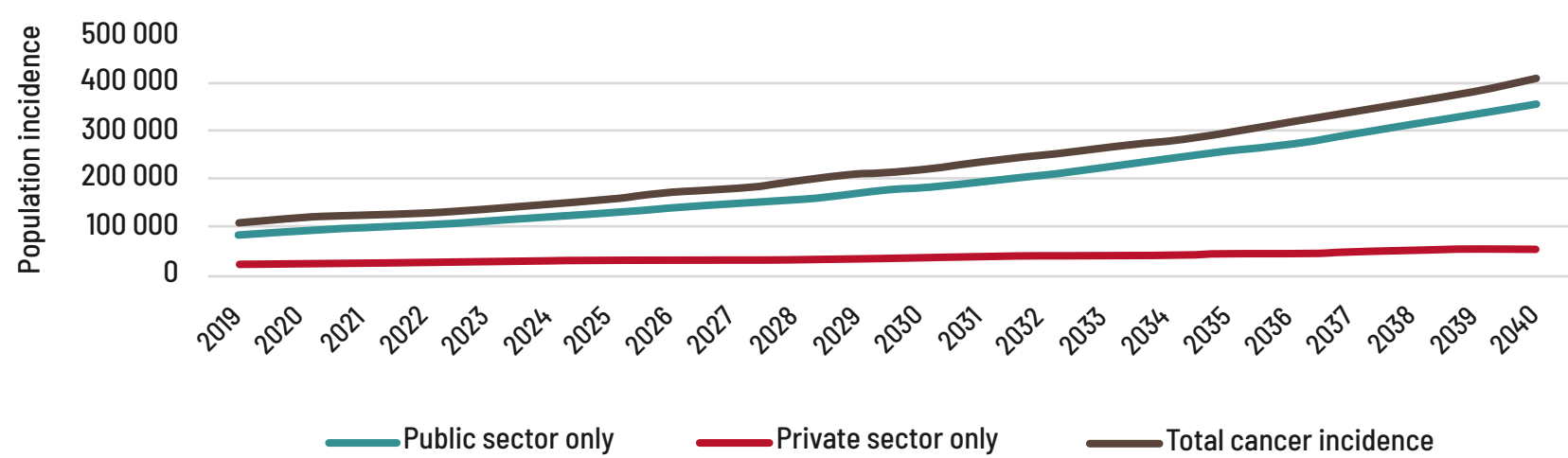


Table 1: Estimated proportion of people living with NCDs: 2020-2040, by NCD (Percept NCD Model, 2021)

YEAR	2020	2030	2040
Comorbidities	8.2%	9.3%	10.4%
Depression	11.7%	12.0%	12.3%
Diabetes	8.9%	10.0%	11.2%
Heart Disease	2.3%	2.7%	3.2%

As seen in Figure 6, model forecasts show that the incidence of cancer is also increasing. The number of incident cases of cancer increases in 2040 (~411,000) is 3.8 times that of 2019 (~109,000). This increase in cancer incidence is a result of demographic changes (cancer risk increases with age) and increases in the age and sex-specific cancer incidence rates over time.

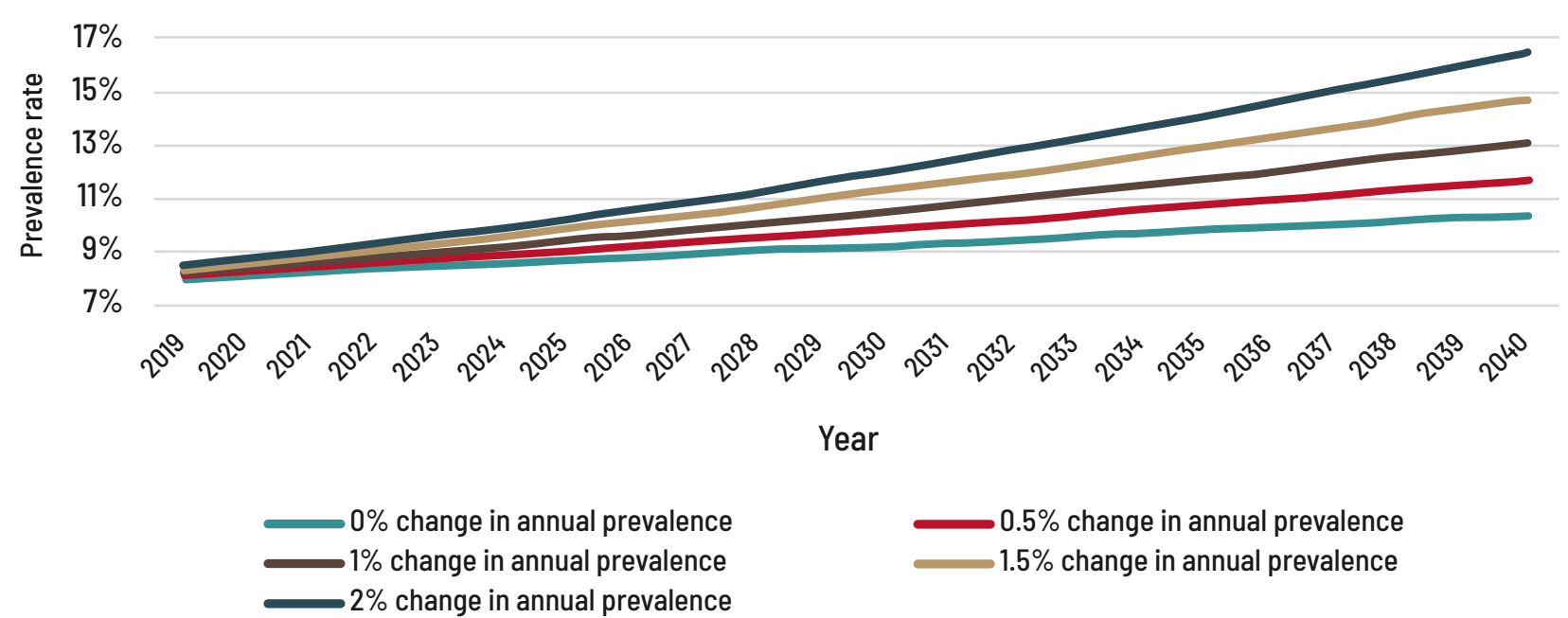
Figure 6: Forecasted incidence of cancer 2019-2040 (Percept NCD Model, 2021)



Scenario analysis

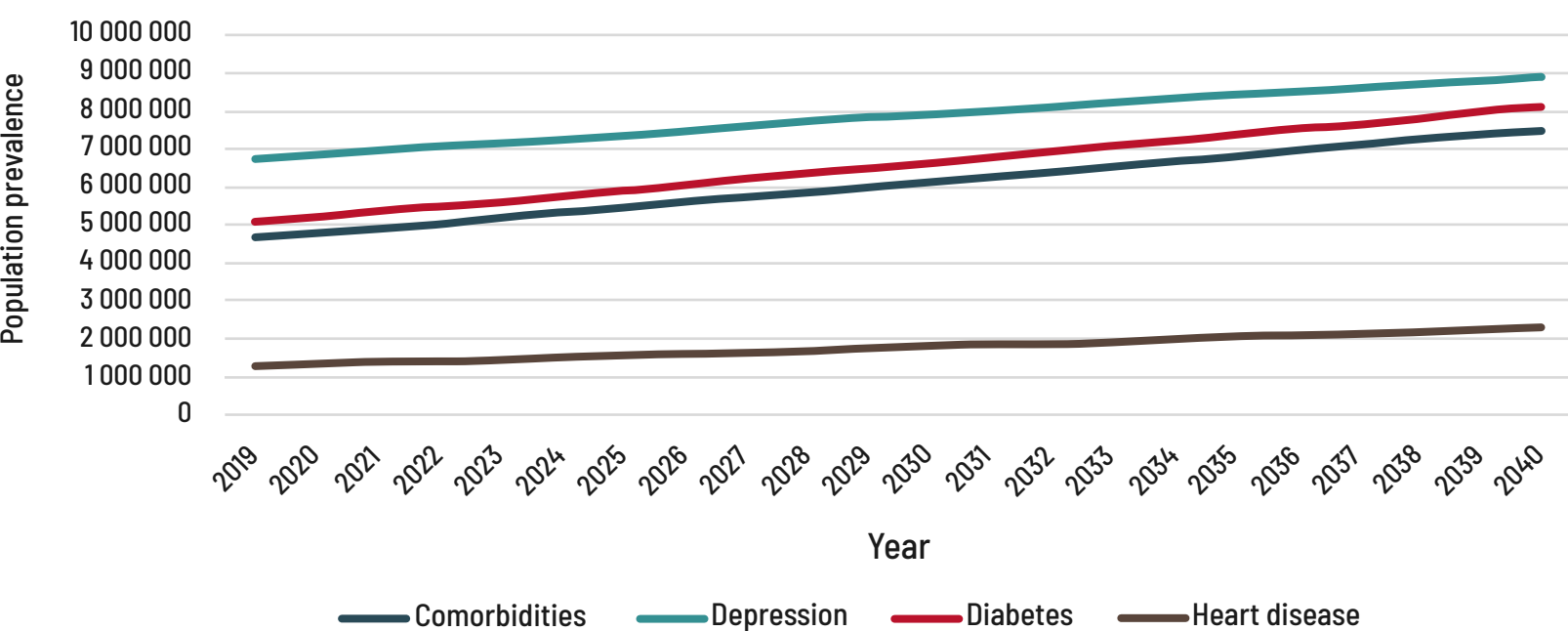
The increase in prevalence over the forecasting period is considerably larger when considering scenarios where the annual age and sex-specific prevalence rates increase over time, as seen in Figure 4. Under the scenario where a 2% annual increase in the age and sex-specific prevalence rate of comorbidity is considered, the prevalence rate in 2040 is forecasted to be 16.5%, 6.1% higher than the prevalence rate under the assumption that there is no increase in the prevalence rate over time (10.4%). This amounts to an additional 4.4 million individuals with comorbidities in 2040.

Figure 4: Forecasted prevalence of comorbidity for five scenarios, 2019-2040 (Percept NCD Model, 2021)



Further scenario analysis considers the impact on prevalence of hypertension in the private sector when considering prevalence rates from data sources that use objective disease measures only (weighted average of DHS and NiDS data) to forecast prevalence over time (as opposed to the weighted average of private sector data sources as described in the methods above). When only data sources that use objective measures of disease are used for forecasting, an additional 1.4 million individuals in the private sector population are forecasted to have hypertension in 2040 (Figure 5). This comparison is useful, given that medical scheme data likely underestimate the prevalence of disease given that only beneficiaries receiving treatment or who are registered on a disease management programme are included in prevalence estimates.

Figure 5: Prevalence of hypertension in private sector population for two scenarios (Percept NCD Model, 2021)



Discussion

The NCD burden faced by South Africa is large and growing rapidly. This can largely be attributed to changes in the population structure, i.e. ageing. When potential increases in the age and sex-specific prevalence rates are considered, the projected burden of NCDs is even greater. Given the epidemiologic transition that many LMICs are undergoing, it is likely that South Africa will face increases in the age and sex-specific prevalence rate of NCDs going forward. Therefore, the modelled scenarios likely provide a more accurate estimate of the future NCD burden.

The speed at which the NCD burden is expected to grow over the next two decades highlights the need for swift action by industries affected by the burden of NCDs. Life and health insurance are both strongly affected by

both the morbidity and mortality resulting from NCDs. Data from RGA (Reinsurance Group of America) shows that NCDs account for three quarters of their terminal illness claims, half of all critical illness claims, and about a quarter of all disability and death claims respectively.³⁰ According to the Association of Savings and Investments of South Africa’s (ASISA) most recent guidelines on the Management of Impairment Claims on Psychiatric Grounds, as of 2017 psychiatric conditions comprised the leading cause of disability claims submitted to the South African insurance industry.³¹

In order to effectively manage the impact of NCDs on business, insurers first need to ensure more accurate understanding of the NCD risk of their clients. Currently, underwriting is often conducted with data points from

only a single time point when the client applies for an insurance policy and client behaviour is not taken into account. However, NCD risk is subject to change over time as the client's lifestyle changes. The use of technology and alternative sources of data allows for continuous underwriting.³² Insurance companies can leverage the additional data points provided by wearable technology to continuously update the risk profile of their clients. AllLife, for instance, requires their diabetic patients to undergo annual health screenings to ensure that they are complying with their Health Control Programme and updates their clients' premiums based on this information.

The availability of digital health data can also be used to enhance the risk assessment process. In the US, 80% of insurance companies are using their clients' prescription history in the underwriting process, and several other leading insurers are exploring the use of machine learning and artificial intelligence techniques to analyse clients' electronic health records.³³ However, as even more personalised data, for instance from genetic testing become more ubiquitous in mainstream medicine this also presents a potential problem of anti-selection risk.³³ Insurers have an incentive to model risk more accurately, given that under current methods of assessing risk more of even their younger client base would either be disqualified or priced out of the market due to having pre-existing NCDs. According to McKinsey 60% of insurance consumers are willing to share more data with insurers if it results in reduced premiums.³² They argue that this is evidence of a shift away from the "assess and service" model of life insurance to the "predict, personalise, engage and share value" model, where insurers partner with their clients to improve their health and nudge them towards more healthy behaviour.³²

Life insurers in particular have an incentive to encourage their clients to make lifestyle choices that reduce their risk of developing NCDs in future. Many NCDs, such as diabetes and hypertension, are long term chronic illnesses which can be managed with medication and the appropriate lifestyle changes. Insurers may have a role to play in encouraging and even incentivising lifestyle choices which support healthy living and longevity for

their clients. Insurers may also play a role in managing better treatment adherence through medication, and lifestyle changes once a patient has developed an NCD that presents as a chronic condition such as diabetes or hypertension.

Discovery Health's Vitality programme is a prime example of successful shared value economics (a business model which pursues financial success in a way which also results in benefits to society as a whole.³⁴). Studies have shown that Vitality members have better health outcomes compared to non-members who also belong to the Discovery Health Medical Scheme. Non-Vitality members have been shown to have 26% higher hospital readmission rates, 78% higher mortality rates during hospital admissions, their hospital admissions are 77% longer, and the total cost of their admission is 16% higher than those of Vitality members (noting that some of these effects may be due to selection and not to the interventions themselves).³⁵

The impact of NCDs on the insurance industry is already substantial and will only grow as the incidence and prevalence of these diseases increases. However, evidence has shown that through capitalising on people's increased willingness to share their personal data and leveraging the shared value created by incentivising healthy behaviour, insurance companies can increase access to insurance while supporting healthier lifestyle choices.

Percept's larger NCD Project

The research presented in this article is based on Percept's larger NCD research efforts. We extend our deep gratitude for generous funding from the Actuarial Society of South Africa (ASSA), the RGA Reinsurance Company of South Africa Limited, and the Board of Healthcare Funders (BHF). Percept has compiled a series of 14 briefs on NCDs in South Africa. The briefs draw include qualitative data, based on primary data collected in one pocket of South Africa, to marry the quantitative findings to the reality on the ground. All 14 briefs are available at www.percept.co.za. 

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ACTUARIAL SKILLS

critical in assessing the risks of global climate change

THE ROLE OF THE ACTUARY IS TO QUANTIFY AND MANAGE FUTURE RISK TO ENSURE THAT ORGANISATIONS ARE PREPARED TO MANAGE POTENTIAL CHALLENGES.

Environmental and social risks and their potential effect on a company's bottom line are no exception. For example, global climate change affects life insurers because it influences mortality rates through an accompanying increase in extreme weather events, with resulting effects on vector-driven diseases, water, air and food qualities, migration and civil conflict.

Actuarial skills are therefore increasingly recognised as critical in assessing the risks of global climate change, with actuaries becoming involved in a number of critical projects. In the United States and Canada, for example, the actuarial profession has recently launched the Actuarial Climate Index to measure variability in climate. Work on the extension of this index to cover Europe is already underway.

In the UK, the Institute and Faculty of Actuaries (IFoA) has addressed the issue of claims for damages caused by contributors to climate change. The IFoA has also signed a statement by the Overseas Development Institute (ODI) urging the G20 Governments to honour their long-standing commitment to phase out fossil-fuel subsidies.

A working group of the International Actuarial Association (IAA) is currently researching the effects of global climate change on mortality. A member of this working group has further been selected as part of an expert panel advising the European Commission on policies targeting sustainable finance, specifically within the context of the Capital Markets Union.

The IAA is also involved in the Warsaw International Mechanism, tasked by the United Nations Framework Convention on Climate Change (UNFCCC) with risk-management approaches to loss and damage associated with the adverse effects of climate change, including slow-onset impacts such as sea-level rises.

Both the IAA and the IFoA have submitted responses to the Task Force on Climate-Related Financial Disclosures established by the Financial Stability Board, an international body that monitors and makes recommendations about the global financial system.

Furthermore, the IAA is working on the regulation and pricing of carbon emissions, the effects of climate change on government budgets, and the usefulness and limitations of insurance as it relates to the effects of climate change on vulnerable populations. In light of the Paris Agreement, the IAA has already drafted a paper on the monitoring of progress towards the stabilisation of CO₂ concentration in the atmosphere.

The IAA is additionally collaborating with the United Nations Environmental Programme's Principles for Sustainable Insurance and with the Organisation for Economic Co-operation and Development on disaster recovery.

It is clear that the actuarial profession sees the need to embrace all three domains of the triple bottom line - environmental (or ecological), social and economic. In recognising this, the IAA is also extending its knowledge on ecological economics and on formulating measures that can be used for environmental, social and economic accountability by entities in both the public and private sectors.

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