Fairness of annuity pricing for low-income earners in South Africa

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Presented at the Actuarial Society of South Africa's 2023 Convention
Sandton Convention Centre 11–12 October 2023

ABSTRACT

Background and purpose: National Treasury has stated publicly that the South African life annuity market does not present good value, particularly for low-income earners.[1] The purpose of this paper is to investigate the validity of this statement. This research is particularly relevant in South Africa today because of the ongoing retirement reform and its implications for the annuity market in the future. With South Africa moving from a world of voluntary participation, voluntary preservation and largely voluntary annuitisation to a world where annuitisation (through legislative changes of 2021) and preservation (through proposed changes in 2024) are compulsory and there is intention of future compulsory participation, it is critical to ensure that the annuity products offered to retiring individuals are appropriate and fairly priced.

Method: After establishing the South African context, we develop concepts of fairness and anti-selection and look to mortality investigations to investigate the relationship between income and mortality. We then describe the South African annuity market pricing based on interviews with and quotations provided by five large insurers and ascertain whether the market is fair based on the definition adopted. In order to compare pricing, we use the "annuity rate" which is defined here as the capital cost of a pension starting at R1. Further, we look to international markets

1 Expression of Interest for Public Interest topics issued by the Actuarial Society of South Africa

and alternative methods of providing longevity protection and make some general suggestions unrelated to pricing which could improve annuity market functioning.

Results: Mortality investigations show that income has a significant impact on mortality. The difference in mortality rates across income bands has an estimated impact on annuity rates of some 20%–30% (Section 7.1.3.2). It is therefore reasonable to expect that an annuity pricing basis should take income into account. This research shows that the institutional market (bulk annuity purchases made by pension funds or employers) uses income as a rating factor in the pricing of annuities, whereas the retail market (where individuals purchase annuities) does not, even within the same insurer. High-income individuals in the institutional market pay around 17%–28% higher annuity rates than low-income individuals whereas in the retail market the annuity rate is the same (Section 9.2.2.1).

Retail annuity rates between insurers are similar; this lack of price differentiation is surprising given the different target markets in which the insurers claim to operate.

The discrepancy in pricing between the retail and institutional markets is notable. Low-income individuals pay some 19%–37% higher annuity rates in the retail market than their cost in the institutional market (Section 9.2.2.2). Anti-selection accounts for an estimated 10%–14% of the difference (Section 7.1.3.1). The remaining difference is significant and should be addressed. Though there may be technical grounds for it, it is unfair that a low-income individual is charged this much more in the retail market than in the institutional market because of expenses and margins.

Internationally, we have found no evidence of a voluntary retirement system with compulsory annuitisation in the countries surveyed. Private annuity markets are small and usually not compulsory. With the exception of Israel where annuitisation using a life annuity priced on a regulated basis is compulsory, and the Netherlands where the discount rate is regulated, there is no evidence of annuity pricing regulations or income rating in annuity pricing. Some interventions were found which could be implemented in South Africa to enhance the annuity market and retirement system in general.

Conclusion: Not allowing for income rating in the retail annuity market results in unfair pricing as the price does not reflect the expected benefit. It is our view that the reasons provided by insurers for not applying income ratings can be addressed (Section 10.1).

There is more incentive and willingness by insurers to offer competitive rates in the institutional market. As retail annuity rates are publicly available, it is in our view unlikely that insurers will voluntarily begin to apply income ratings in retail annuities as this will expose them to anti-selection risk. The requirement to take income (or a proxy for income) into account in retail pricing, in our view, needs to be legislated.

The level of discrepancy between retail and institutional pricing is unlikely to be explained by anti-selection alone, and the costs and other margins in retail annuities should be addressed as the impact on pricing is material. In addition, as long as living annuities continue to be permitted for compulsory annuitisation purposes, anti-selection will result in higher life annuity prices than would otherwise be the case.

Broader considerations: The annuity market has other elements of unfairness which are unrelated to pricing which include unsupported risk transfer, unregulated access to inappropriate products, information asymmetry and product complexity leading to a requirement for costly financial advice, the commission structure of living annuities leading to incentivised sales of these products and market segmentation.

Some interventions aimed at reducing living annuity sales (harmonisation of regulations of living annuities, requirement for financial advisors to present life annuity options to clients, changing the commission structure on living and life annuities to prevent conflicts of interest and preferential tax treatment of life annuities) could assist to increase life annuity take-up but these do not address the structural problem of inappropriate products being used to provide income security at retirement, nor do they bring the retirement system any closer to one which recognises retirement income security as a social good.

Considering retirement income security as a social good, regulation at annuitisation is required to ensure that accumulated retirement savings are converted into income security at retirement to ensure that the retirement system delivers outcomes which are in line with its purpose. The use of a living annuity for the purpose of annuitisation is not appropriate for the majority of the population, especially in a retirement system where annuitisation is compulsory and even more so in the future compulsory retirement system. We rather suggest that a minimum pension amount should be secured by a life annuity (with inflation-linked or fixed annual increases) the pricing of which is regulated and where the system builds in a mortality risk compensation between insurers. This would result in a privatised partly national annuity system. Any remaining retirement capital can be used to purchase a living annuity or any other annuity. We also make further suggestions as to the accumulation phase of such a national system including mandatory participation and contributions, de-linking of membership from employment, and enhanced performance, governance and disclosure criteria with implications for writing new business.

This is not an academic paper and is based on industry knowledge of the authors and industry practice. We hope that it starts conversations which will ultimately improve the retirement system and outcomes for South Africans.

KEYWORDS

Fairness, annuity pricing, annuity rate, South Africa, retail annuity market, institutional annuity market

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1. INTRODUCTION

1.1 Scope

The scope of this research paper is per the Expression of Interest for Public Interest Research Topics issued by the Actuarial Society of South Africa.

National Treasury have often stated publicly that the South African life annuity market does not present good value, particularly for low-income earners. It seeks to intervene in this market to support those more needy and ensure better value. The following investigations could be considered:

— To what extent should there be price differentiation on income in the individual life annuity market (as currently exists in the bulk life annuity market)?
— Are there interventions or support such as longevity insurance which Government could provide to deliver better value to this market?
— Are there learnings from international markets trying to encourage annuitisation (eg US or Australia) or those allowing some form of surrender (UK) that could better guide policy in this regard?
— An analysis of the existing market and international best practice that may guide further development of the life annuity market.

This research aims to provide a better understanding of the life annuity market dynamics and the appropriate interventions to address what may be perceived as market failures.

Accordingly, this paper evaluates the practice of life annuity pricing in the South African market to determine whether the pricing basis is "fair", specifically towards lower income workers and specifically in the retail market. The paper looks to international practice to see what systems other countries have in place to inform potential policy interventions. It then discusses potential solutions and outlines further research.

1.2 Limitations

This paper is not, nor was intended to be, an academic paper, and is based largely on industry knowledge of the authors and industry practice.

This paper does not consider the "value" offered by annuity products in terms of whether these are considered as important by the public. This could be considered in future research.

This paper only considers the pricing practices in the life annuity market. The living annuity market is not considered in terms of the fairness and value offered, although we do consider the differences between life and living annuities and whether living annuities are an appropriate solution for low-income retirees. We suggest that this is also worth exploring in greater detail in future research.

This paper looks only at the pricing of annuities at retirement. It does not consider or address the problem of inadequate retirement savings at retirement (due to insufficient saving or non-preservation of benefits).

1.3 Structure

The paper is divided into five main parts with individual sections.

Part I gives context to the problem by giving an overview of the South African retirement benefit landscape and explaining the importance of fair annuity markets in the South African context (Section 2); describing annuities available in the South African market and considering which would be most appropriate for low-income individuals (Section 3); and pointing out the segmentation between the institutional and retail annuity markets and giving some market data on the retail market (Section 4).

Part II develops some important concepts which are helpful for the topic at hand. These include the concepts of "fairness" and "value" (Section 5) and anti-selection (Section 6). Section 7 considers various mortality investigations to understand the relationship between income and mortality and its effect on annuity pricing. The impact of anti-selection is also quantified.

Part III considers whether the annuity market is fair and delivers value to low-income members by describing how retail and institutional annuities are priced (Section 8) and comparing actual annuity rates obtained in the retail and institutional market (Section 9). Section 10 summarises all the findings and concludes whether the market is fair and offers value from a pricing perspective.

Part IV looks to other markets (Section 11) and other ways of providing income security after retirement (Section 12).

Part V (Section 13) is a conclusion and discussion of various possible policy interventions to enhance not just the annuity market, but the retirement system as a whole.

PART I – THE SOUTH AFRICAN ENVIRONMENT

2. SOUTH AFRICAN RETIREMENT BENEFIT LANDSCAPE

In this section we explore the structure of the South African retirement system to give context to the importance of this research.

2.1 Structure of the retirement system

Retirement social security for the purpose of this paper can be looked at in terms of these three pillars:

2.1.1 PILLAR 1 – NON-CONTRIBUTORY SOCIAL GRANTS FUNDED FROM GENERAL TAX REVENUE

In South Africa, this is represented by the Older Person's Grant paid by the South African government from general tax revenue. This grant is payable to South Africans who are 60 years and older and is means tested. In 2023, the grant amounts to some R2 080 per person per month. The average salary in South Africa in 2023 is around R25,000[2] per

2 StatsSA P0277 – Quarterly Employment Statistics March 2023 – all formal non-agricultural

month (the minimum in the formal non-agricultural sector is around R8,000 per month). Although this level of retirement benefit provides relief to many households it is not considered to be an adequate level of retirement income for those formally employed.

2.1.2 PILLAR 2 – SOCIAL INSURANCE FUNDED THROUGH MANDATORY CONTRIBUTIONS

These would typically be schemes run by the government at a national level. All working individuals would be required to contribute to the scheme, and on retirement they would receive a pension from the scheme. South Africa does not currently have a contributory national pension system in place. (A Green Paper was released in 2021 indicating Government's plans for establishing a National Social Security fund. The paper was subsequently retracted and we see this as unlikely to materialise in the next 10 years even if all stakeholders agree on structure and implementation, which they currently do not.)

2.1.3 PILLAR 3 – SUPPLEMENTARY SCHEMES

These are typically private schemes providing additional benefits funded through tax-incentivised contributions. Though not mandatory, the private retirement industry is well developed in South Africa with many employers requiring participation of an occupational scheme as a condition of employment, and many self-employed individuals contributing to private retirement annuity funds in their own capacity.

Given that contributions to a supplementary scheme are not mandatory, lower income, informal and "atypical" sectors are not adequately participating in the private retirement system, relative to the number of people employed (Table 1).

Table 1 Number of contributors to retirement funds by income band and sector

	Numbers employed 2020 Q1 ('000s)	Retirement fund Contributors ('000s)	%	Non-contributors ('000s)	%	Contributors as % of Numbers employed	
Earnings (2021 prices)							
R0-45,000	5 406	657	9.4%	4 749	50.6%	12,2%	Low Paid Workers
R45-90,000	3 932	915	13.1%	3 017	32.2%	23,3%	
R90-350,000	4 372	3 042	43.5%	1 330	14.2%	69,6%	
>R350,000	2 672	2 386	34.1%	287	3.1%	89,3%	
Formal (non-agr/hhld)	11 282	6 553	93.6%	4 728	50.4%	58,1%	
Informal (non-agr/hhld)	2 921	395	5.6%	2 525	26.9%	13,5%	Informal & Atypical Work
Agriculture & Household	2 180	51	0.7%	2 129	22.7%	2,4%	
Total	**16 383**	**7 000**	**100%**	**9 383**	**100%**	**42,7%**	

Source: Rowan Burger, Pension Lawyers Association conference May 2021

2.2 Pillar 3 – Supplementary schemes – private pension provision

The private pension provision in South Africa is relatively fragmented with various types of vehicles which all have slightly different rules being used for the delivery of retirement benefits to various sectors of the market:

— Occupational schemes are group schemes offered by employers
— Retirement annuities are retail schemes for individuals
— Preservation funds are retail non-contributory vehicles

A lot of work has been done to date to harmonise the treatment of these various vehicles to improve simplicity and enhance portability of benefits through alignment of the tax treatment of pension and provident funds in 2016 and alignment of the annuitisation requirements of retirement benefits from different types of funds in 2021 (though this will take some years to achieve practical results due to the protection of vested provident fund rights to encash retirement benefits).

We briefly describe the various types of funds below for completeness.

2.2.1 OCCUPATIONAL SCHEMES

Occupational schemes are those offered by employers to their employees as a condition of employment. Most of the occupational retirement schemes in South Africa are defined contribution funds,[3] as most defined benefit funds[4] converted to defined contribution funds over the last 20 or so years. We note that the largest fund in the country, the Government Employees' Pension Fund remains a defined benefit fund. The global trend of defined benefit funds converting to defined contribution funds has been termed by the Institute and Faculty of Actuaries as the "Great Risk Transfer",[5] as savings, investment, longevity and income risks are transferred from institutions to individuals and South Africa has not been immune.

Retirement benefits from a defined benefit fund are traditionally paid to the retiring individual as a guaranteed (life) annuity. Retirement benefits from a defined contribution fund may be paid as a lump sum or used to purchase an annuity (see Section 2.3), depending on whether the fund is a pension or provident fund. Withdrawal benefits (on resignation or retrenchment from employment) for both fund types are paid in cash subject to punitive tax charges. Transfer of benefits between occupational funds is permitted, but not yet mandatory, on changes of employment.

Most large- and medium-sized employers require that their employees participate in a retirement fund as a condition of employment. Some of these employers establish "stand-alone" retirement funds for the benefit of only their employees. Others, usually smaller employers, typically participate in multi-employer "umbrella funds" which allows them to offer occupational retirement benefits to their employees while avoiding the fiduciary

3 Retirement benefits from defined contribution funds depend on the contributions made and investment returns earned on the accumulated contributions. The capital lump sum received can be used to purchase an annuity. The investment risk (and potentially the longevity risk depending on the annuity chosen) lies with the individual.
4 Retirement benefits from defined benefit funds are fixed in terms of a pension entitlement based on years of service, accrual rate and final salary. Investment and longevity risk lies with the employer.
5 https://actuaries.org.uk/thought-leadership/campaigns/great-risk-transfer/

responsibility and management time involved in the management of a "stand-alone" fund, while benefiting from economies of scale of a larger "umbrella fund".

2.2.2 RETIREMENT ANNUITY FUNDS

Self-employed individuals, contract workers and individuals working for employers who do not require retirement fund membership as a condition of employment can save for retirement through a retirement annuity fund. This is a retail vehicle typically offered by insurers or asset managers. In these funds, the savings are locked in until retirement (age 55 or older). There is no option to encash the benefits prior to retirement, except in the case of emigration. At retirement, the same annuitisation requirements apply as for pension funds (see Section 2.3).

2.2.3 PRESERVATION FUNDS

For completeness, preservation funds are non-contributory retail vehicles where benefits from other contributory funds can be preserved. These allow one withdrawal prior to retirement. On retirement, annuitisation depends on whether the fund is a provident or pension preservation fund (see Section 2.3).

2.3 Annuitisation requirements in defined contribution schemes

Prior to 1 March 2021 the benefit regimes of pension and provident funds differed on retirement. In a pension fund, a maximum of one-third of the retirement benefit could be taken in cash with the other two-thirds being used to purchase an annuity. In a provident fund, the entire retirement benefit could be taken in cash.

With effect from 1 March 2021, changes made to the Income Tax Act harmonised the annuitisation requirements between all funds in respect of savings after this date:

— For all pension funds, retirement annuities or pension preservation funds (before and after 1 March 2021): a maximum of one-third of the accumulated benefit may be taken as a cash lump sum at retirement. The remainder of the benefit (a minimum of two-thirds) must be used to purchase an annuity.

— For provident fund and provident preservation funds: benefits arising from contributions made prior to 1 March 2021 may continue to be taken as a cash lump sum at retirement.[6] Benefits arising from contributions made after 1 March 2021 are subject to the one-third/two-thirds annuitisation rule applicable to pension funds.

If the amount which is subject to the annuitisation requirement amounts to less than R165,000 (under current legislation), this may be taken in cash at retirement. Life or living annuities, or a combination of the two, may be used for annuitisation of benefits.

As such, in South Africa we have already moved to a mandatory annuitisation system

6 Special provisions apply to provident fund members who were 55 years or older on 1 March 2021.

where the benefits arising from two-thirds of all contributions made to the retirement system from 1 March 2021 will be subject to annuitisation (with a life or living annuity) at retirement.

In December 2021, National Treasury released a discussion paper outlining an intention to reform the pension system whereby one-third of future contributions (or benefits arising from future service) would be allocated to a "savings pot" which would be accessible at any time, and the remaining two-thirds to a "retirement pot" which could only be used at retirement to purchase an annuity. This results in compulsory preservation of the "retirement pot". The draft Revenue Laws Amendment Bill released for comment in August 2022 attempted to bring this new system into law from 1 March 2023. After receiving feedback from the industry and others, the implementation date has been postponed to 1 March 2024. A second round of draft legislation was released for comment during June 2023.

The introduction of this "Two-Pot" system will bring about compulsory preservation of the "retirement pot" and should result in more individuals retiring with higher retirement savings balances. These higher retirement savings balances will be subject to mandatory annuitisation (through life or living annuities) at retirement.

In addition, Government is also considering implementing auto-enrolment, which will effectively mean mandatory participation in a retirement scheme for formal sector employees. If auto-enrolment is introduced, this means that individuals who were not previously participating in the retirement system are brought into it and the pool of savings, and population needing to ultimately annuitise these savings, will be even bigger and more diverse than is currently the case. Certainly, it will mean that there will be a larger population of low-income individuals in the formal retirement system.

If the systems as described above are implemented, it will mean that South Africa has compulsory (to the extent that it is introduced) retirement savings, compulsory preservation and compulsory annuitisation at retirement. How effectively people use their accumulated balances to convert these into a pension income is a critical determinant of how well the retirement system meets (or fails to meet) the needs of its members.

2.4 Importance of fair annuity pricing for low-income individuals in the SA context

While fairness is always important, it is arguably less critical when an individual can opt out of the system in the event that the system fails that individual. With South Africa moving from a world of voluntary participation and voluntary annuitisation to a future world where participation, preservation and annuitisation (through life or living annuities) are compulsory, it is essential that the life annuity products which are available to retiring individuals are appropriate and fairly priced, especially for those most vulnerable. In the absence of this, individuals will likely be drawn to the living annuity market, which does not in our view offer an appropriate retirement solution for lower income workers in its current form (see Section 3).

3. SOUTH AFRICAN ANNUITY MARKET – TYPES OF ANNUITIES

An annuity is a financial product where in return for a lump sum payment, the insurer pays the policyholder (typically a retiree) a series of future payments on agreed terms.

The two broad categories of annuity products available in South Africa are life annuities and living annuities. In this section we describe and compare these two products, and discuss which annuity product type we consider most appropriate for lower income workers.

3.1 Life annuities

A life (or guaranteed) annuity is a product where in return for a lump sum payment, the provider pays the pensioner a pension income which is guaranteed to be paid until the death of the pensioner, regardless of how long the pensioner lives. These products can only be sold by life insurance companies which are governed by the Long-Term Insurance Act. Occupational funds can also offer such annuities, but few do so.

Fixed term annuities payable for a fixed term (say five or ten years) rather than for life are also available.

Various types of life annuities exist and differ from each other in how the pension increases are determined. The life annuity products available in South Africa include:

- Level annuity – pension payments are fixed in monetary terms and do not change
- Fixed increase annuity – pension payments are guaranteed to increase annually at a specified fixed rate, say 5% per annum
- Inflation linked annuity – pension payments are guaranteed to increase annually in line with inflation
- With-profits annuity – pension increases are linked to the investment performance of the underlying assets and longevity experience of the pensioner pool

Life annuities can include additional terms such as a 13th cheque, a spouse pension[7] and a guaranteed term.[8] Besides the spouse pension and the guarantee term, there are typically no benefits paid on the pensioner's death.

Annuity providers manage the risk of longevity through the pooling of longevity risk across their annuity book. By pricing on the average mortality experience of the pool of lives, profits made by paying fewer than expected payments to shorter-surviving individuals are used to subsidise losses made by paying more than expected payments to longer-surviving individuals.

The capital backing life annuities needs to be invested appropriately to meet expected future annuity payments. Annuity providers may manage the investment risk through

7 This is a pension which continues to be payable to the spouse of the pensioner after the death of the main pensioner, until the spouse's death – typically set at between 50% and 100% of the pension received by the main pensioner immediately before death.

8 This is the number of years after commencement of the pension that an unreduced pension will continue to be paid, noting that this is typically paid as a lump sum.

liability-driven investment (LDI) strategies, which aim to partially or fully match the future expected payments. The primary assets used are nominal and inflation-linked government bonds. Derivatives, credit or equities may also be used to increase expected returns or create a closer cashflow match.

The advantages to the pensioner of purchasing a life annuity include protection against longevity risk (payments are guaranteed until death so there is no risk of outliving capital), certainty about the level of future pension increases through fixed contractual terms (not applicable for with-profits annuities), and the ability to add a spouse's pension or a guarantee term. One of the often ignored advantages is that there is no need for the retiree to make any decisions after the original purchase of the annuity. This is important as cognitive capacity decreases with age. The main criticism of the life annuity is the lack of inheritability – if the pensioner is one of those who dies earlier than the average, with the exception of a spouse pension and guarantee term, excess capital does not form part of the inheritance nor is it payable to dependants.

3.2 Living annuities

Living annuities were introduced in South Africa as annuity products for the wealthy as top-up options to other forms of income. A living annuity is a product which functions like a savings account, where the pensioner's capital lump sum is paid into an individual "account" and the pensioner can choose how the capital is invested as well as the level of pension to be drawn down from the invested amount in each year (the drawdown is limited by regulation to a minimum of 2.5% and a maximum of 17.5% of the capital value per annum). On the pensioner's death, any remaining capital is bequeathed to their beneficiaries or dependants. The pensioner retains the investment and longevity risk and there is no pooling of risk. If investment returns are low, the income drawn is too high, or the pensioner lives longer than expected, there is a risk that the pensioner will outlive his/her capital. Living annuities are offered by life insurance companies, as well as by asset management companies and some occupational funds.

Investment choice offered within the living annuity is usually wide and restrictions depend on the provider. Living annuity investments within occupational retirement funds are restricted by Regulation 28 of the Pension Funds Act, whereas no regulatory restrictions apply to the investments of living annuity funds offered by insurers or asset management companies. In addition, living annuities which form part of an occupational fund's "default" annuity strategy are restricted by Regulation 28 regardless of who the provider is and investment choice is limited to four portfolios. The reasons for these inconsistencies in the regulation are not clear and create fragmentation of the market. This should be addressed.

The advantages to the pensioner of purchasing a living annuity include control over both the level of pension as well as the investment strategy, enabling the pensioner to tailor the product to meet his or her risk appetite as well as income needs; flexibility of income

from one year to the next so unforeseen expenses can be factored into account; and the bequeath motive whereby any balance remaining in the pensioner's living annuity account is payable to his or her dependants or reverts to his estate on the pensioner's death.

The paper released by National Treasury in 2012, "Enabling a better income in retirement", mentions that the charges on living annuities are high (around 2% of balances per year), individuals appear to be investing in similar portfolios (so there appears to be little individualised investment choice exercised) and drawdown rates appear high – the median being around 7.5% before charges. This is significantly higher than the recommended drawdowns as published by the Financial Sector Conduct Authority (4% at age 55 increasing to 7% at age 80).

3.3 Life vs living annuities

The differences between life and living annuities are outlined in Table 2.

3.3.1 RISK TRANSFER

The objective of an annuity product is to provide an income and income security to an individual after retirement. This can be done in different ways and the different products offer different risk transfers from the individual to the annuity provider. Risks involved in annuity provision include longevity risk (the risk of outliving your capital), investment risk (low investment returns on capital) and inflation risk (high inflation erodes the value of income over time).

In addition, for the individual, decision risk is important especially as cognitive function decreases with age. In a life annuity the choices at retirement are much simpler: which type of annuity (or in other words what kind of future pension increase) to select and from which provider, and whether to add a spouse pension or guarantee term. With the exception of a with-profits annuity, the products are standardised, so in this respect the selection of the provider is simple. In a with-profit annuity, since future pension increases depend on investment performance, the selection of the provider requires an evaluation of the investment strategy and investment manager skill of the provider, which is a complex task. In any event, the decision happens at the outset and no further decisions are necessary.

In a living annuity, the decision of where the capital should be invested and how much capital to draw down as a pension (which requires the assessment of a complex trade-off between current and future needs) must be carefully managed on an annual basis. Again, the investment selection is important and the lack of regulation around living annuity investment options is problematic.

A living annuity requires relatively complex management which will likely become more difficult for the pensioner as they become older. In addition, the possibility of using the balance in the living annuity to purchase a guaranteed life annuity should be considered on an ongoing basis. The decision-making involved in the management of a living annuity results in the need for ongoing financial advice.

Table 2 Differences between life and living annuities

	Life annuity	Living annuity
Structure	Contract whereby for a certain lump sum you purchase a defined series of future monthly payments from an annuity provider	Functions like an investment savings account, whereby the capital balance is drawn down over time by regular payments made to you by the provider
Payment term	Guaranteed payment as long as you live	Until living annuity balance is "depleted"
Pension amount	Set by provider at outset depending on the chosen pension increase policy and other terms (spouse pension / 13th cheque / guarantee term); there is no flexibility to change these terms once the contract is in force	You decide how much pension you want every year (subject to minimum 2.5% and maximum 17.5% of your capital per annum)
Investment expertise needed	None	You decide how the living annuity balance should be invested, typically guided by an advisor
Decision making required	At point of purchase you need to decide: Type of pension Level of pension increases How much pension should your spouse receive on death Whether to include a guarantee term	Every year you need to decide the amount of pension to draw down over the coming year and where the living annuity balance should be invested
Inheritability	None (except where a guarantee term or spouse pension has been selected)	Your living annuity balance is bequeathed to your dependants on your death
Ability to change contract terms or provider later	Not permitted	Permitted – can purchase another living annuity or life annuity; can change investment choice and pension amount annually
Risks	Capital loss on death – unless there is a spouse's pension or guarantee term, there are no benefits on death; specifically, early death results in the loss of a significant amount of capital[9] Inflation – level annuity or fixed increase policy may result in inadequate income over time in real terms Provider solvency – loss of income on insolvency of provider (this is a low probability risk given the stringent regulatory capital requirements for providers)	Longevity – there is a risk of outliving your capital if you live longer than expected or select a drawdown rate that is too high Investment risk – low investment returns may also result in outliving capital Investment choice – inappropriate or ill-advised investment selection may result in capital loss; investment performance may be poor and investment market losses may be locked in when funds are drawn down High investment management and advisory fees erode the value of the capital balance
Costs	Typically lower	Typically higher – financial advisory fees; investment management fees In-fund living annuity typically has lower costs than an external living annuity
Advice	Possibly required at outset only	Required on an ongoing basis for annual investment and drawdown decisions
Commission structure	Legislated – initial commission only	Legislated – initial commission plus trail annual commission as long as the annuity is payable. Many providers also charge additional fees for the "investment portfolio wrappers"

9 This is a necessary function of the life annuity model, as it subsidises those in the provider's pool that live longer than expected.

The different risks and risk transferred from the insurer to the annuity provider are shown in Table 3.

Table 3 For each annuity type, risks transferred to the insurer or mitigated

Risk transferred to an insurer	Longevity risk	Investment risk	Inflation risk	Decision risk
Life level	Yes	Yes	No	Initial, simple
Life fixed increase	Yes	Yes	Some	Initial, simple
Life inflation linked	Yes	Yes	Yes	Initial, simple
Life with-profit	Yes	No	Some	Initial, complex
Living annuity	No	No	No	Ongoing, complex, increases with age

3.4 "Hybrid" annuity

With the introduction of default annuity strategies for retirement funds in 2019, the market grappled with the shortcomings of both types of annuities. Though the concept of a hybrid annuity – a combination of a life and living annuity – had previously been briefly mentioned, it now became widely debated.

The hybrid annuity starts off as a living annuity (to access the inheritability and choice aspects) and over time transitions to a life annuity (to access the risk transfer aspects). Alternatively a combination of a life and living annuity is selected at the outset. Various structures of the hybrid annuity exist. Some specify a minimum income which must be purchased initially as a life annuity prior to any purchase of a living annuity, some are two different policies and others are blended products which use the life annuity as a building block in the living annuity investment strategy.

Anecdotally, the take-up of hybrid annuities has been very low, both by trustee boards in implementing these as defaults, and by members where these have been included as defaults. In our view this is simply because the structure is complex and difficult for members to understand.

3.5 Voluntary market choices – life or living annuity

The paper by Poterba (2001) entitled "Annuity markets and retirement security" states:

> Annuity markets have long attracted interest from economists. In simple life-cycle models, Yaari (1965) shows that an individual facing an uncertain lifetime, with no consumption risk such as unexpected healthcare needs and with no bequest motive, should annuitise all of his or her wealth at retirement. This prediction stands in stark contrast to experience in annuity markets.

Poterba (2001) gives four reasons why individuals do not purchase life annuities and rather opt for payout options which expose them to the risk of exhausting their benefits before death. (Although the paper is considering why an individual would take a cash lump sum

rather than an annuity, these reasons may also explain why individuals would choose a living annuity rather than a life annuity at retirement in the South African context):

— **Bequest motive** – purchasing a life annuity is not consistent with leaving some wealth for one's heirs. Although some protection can be offered in the form of guarantees (where the number of annuity payments is set at a minimum period regardless of survival), this is not seen as adequate.[10]
— **Flexibility** – there is demand for income flexibility to cater for unforeseen expenses, such as medical expenses. In addition, there may be some desire to "control the behaviour of potential beneficiaries" through available finances rather than paying these to an insurer to purchase a life annuity.
— **Complexity** – life annuities may be seen as complex financial products which individuals do not understand.
— **Cost** – these products may be viewed as "expensive" from the perspective of the individual. This is typically looked at as the discounted present value of the expected future payments relative to the purchase price of the life annuity. A life annuity will be seen as expensive if the insurer is charging substantial amounts for administration and other costs or if the annuitant's expected mortality is lower than average mortality.

In addition to the above factors, based on experience internationally (Section 11) and in South Africa, the disincentives for annuitisation stem from both the demand side (consumers do not select life annuities) and supply side (providers or advisors do not favour selling life annuities).

On the demand side the disincentives include:

— availability of state benefits (especially when this is means tested),
— the option of a lump sum benefit at retirement (immediate gratification),
— underestimation by consumers of longevity risk and income requirements in retirement, and lack of knowledge of how best to use savings to meet future income needs,
— too little competition in the insurance market and uncompetitive market practices or pricing,
— behavioural and informational limitations and inadequate financial literacy, or
— mistrust of financial institutions and being "locked in" to a single provider for life.

Disincentives on the supply side include:

— perverse incentives of providers and advisors to sell products offering lower risks (to the provider), higher profit margin or higher commission such as living annuities,

10 Authors' note: we note that in South Africa the cost of a 15-year guarantee is very small and could give quite substantial peace of mind.

— poor understanding of life products by advisors,
— regulatory burden and capital requirements of life products,
— anti-selection risk (those in good health are more likely to select life annuities; rating on purchase amount introduces risk of individuals splitting annuities across providers), or
— willingness and ability to take on the risk of increasing longevity (especially systemic longevity risk).

It is possible that after a long period of ultra-low interest rates, the current global trend of higher interest rates may see a positive change in the rate of take-up of life annuities.[11]

3.5.1 COMMISSION STRUCTURE

The role of the financial advisor on the annuity landscape should not be underestimated.

When faced with an important decision which is outside their area of expertise, individuals tend to defer the decision to a "trusted advisor", where such advice is available to them. Retirees will naturally want to trust an expert advisor when they need to navigate their options at retirement. When the time comes to decide how best to provide a future income for yourself from your accumulated pot of retirement savings, the stakes are high and the options may seem overwhelming. There is a high level of vulnerability and information asymmetry in the retiree-financial advisor/provider relationship.

Unfortunately, there may be a perverse incentive for the advisor to not always act in the best interest of the retiree and the structure of the commission payable to the financial advisor may be skewing the advice in favour of living annuities. Potential evidence of this exists in the Chilean experience, where the take-up of life annuities became dramatically higher than the take-up of living annuities after commission on living annuities (called "programmed withdrawals") was capped at a lower level than commission on life annuities (Section 11.1.1).

3.5.2 SOUTH AFRICAN EXPERIENCE

The South African experience is no different from that observed in Poterba (2001). According to the paper released by National Treasury (2012) entitled "Enabling a better income in retirement":

> Today only about 20% of retirees choose conventional [life] annuities. Annuity purchase behaviour appears to be driven strongly by short-term considerations and sales incentives. In particular, the commission earned by brokers for selling a living annuity may be up to 10 times larger over the life of the product than the

11 A higher interest rate increases the discount rate for future payments, resulting in a higher present value of the annuity.

> commission for selling a conventional annuity. Only about 10% of policies sold by brokers are now conventional annuities."

Though updated market data is unavailable, anecdotally, the market trend seems not to have changed since 2012, with significantly more living annuities continuing to be sold compared to life annuities.

In addition to the points raised by Poterba (2001) of why a living annuity may be preferred to a life annuity, the current commission structure on annuities in the South African insurance market may also be a factor in driving the choice in favour of living annuities:

- On a life annuity, the advisor will earn a once-off commission of up to 1.5% of the purchase price upfront.
- On a living annuity, the advisor will earn up to 1.5% upfront, plus up to 1% of the living annuity balance per year while the living annuity is in payment. We understand that this is negotiated between the advisor and the retiree and that the average ongoing commission is typically between 0.5% and 1% per annum.

3.6 Which annuity type is most appropriate for the lower income market?

The lower income market is generally characterised by low levels of financial literacy and sophistication around formal financial products, low levels of access to financial advice, higher mistrust of formal savings vehicles and lower levels of savings and alternative income in retirement. There is a high reliance on the State or family members for retirement income.

We propose that an ideal annuity for this market needs to:

- Be simple to understand in terms of benefits which will be paid
- This will mean that individuals understand what they can expect and are not disappointed with what they are purchasing
- It will also mean that there is little or no financial advice necessary around the product structure
- Transfer as much risk as possible to the provider
- Require little or no future decision making on the part of the retiree
- Minimise costs

While a hybrid annuity may offer the most tailored solution and possibly best manage the combination of desired (and often opposing) product features discussed above, this is a complex product and requires a high level of advice. For this reason it is our view that this is not an appropriate product in its current form for the bulk of the lower income market.

Taking the above requirements into account, we propose that the life annuity is a more appropriate product for the lower income market than the living annuity.

Our view is supported by the paper released by National Treasury in 2012 which notes why life annuities may be the preferred product (relative to a living annuity) for lower income workers:

— Security of income regardless of longevity,
— No ongoing decision-making, financial advice or knowledge is required and the product is easy to understand,
— Unforeseen medical expenses and need for flexibility of income in this regard is not a deterrent as these individuals rely on the state healthcare system, and
— Individuals with pension accumulation of less than R300,000 will retain access to the state Old Age grant (National Treasury, 2012).

> For people on low-incomes, the need for financial advice alone makes living annuities inappropriate.

In addition, the life annuity should provide some inflation protection and an option for a death benefit or spouse pension.

A with-profits life annuity targeting pension increases in line with inflation is in theory the optimal retirement income product. It offers the benefit of pooling of risk without the cost of guarantees which makes it cheaper than an inflation-linked annuity. Unfortunately, these products are not standardised and are difficult to compare across providers. As the future pension increases depend largely on investment performance, evaluation of products entails an evaluation of the providers' investment skill which is difficult. In addition, the post-retirement interest rate used in the pricing and which will affect future pension increases is difficult to understand. Unless these products are entirely standardised so as to remove the advice aspect and enable proper and easy comparisons, in our view these are not appropriate in their current form for the lower income market.

We propose that a life annuity with some inflation protection is the most suitable product for the lower income market from a product structure point of view.

4. SOUTH AFRICAN ANNUITY MARKET – RETAIL AND INSTITUTIONAL MARKETS

A further nuance in the South African market is the split between retail and institutional markets.

4.1 Institutional, retail and default annuity markets

4.1.1 THE INSTITUTIONAL ANNUITY MARKET

The institutional annuity market (this is also called the "group", "corporate" or "bulk" annuity market) deals with the bulk purchase of individual annuity policies for a group of pensioners. This may happen for example if a pension fund closes and needs to purchase annuities for all its pensioners at once. The pension fund will approach the insurers to

provide a quotation to take over that book of pensioners. Once an insurer is selected, the fund will pay the insurer the required capital amount, and the insurer will take over the payment of the pensions under the agreed terms.

The institutional annuity market was born out of a need for pension funds to outsource pensioners to an insurer. The institutional market is smaller than the retail market and growth is dictated by the number and frequency of outsourcing deals – this is driven primarily by companies wanting to close out their defined benefit liabilities and therefore the timing of sales is "lumpy".

4.1.2 THE RETAIL ANNUITY MARKET

The retail annuity market deals with individual annuity purchases by individual retirees as they retire, usually with the assistance of a financial advisor.

Insurers treat these two markets as independent silos, with separate teams, strategies and, importantly, pricing bases. This means that if a person purchased an annuity in the retail market, the price of that annuity would be different than if they were part of a large outsourcing of pensioners which was dealt with in the institutional market. This is elaborated on further in Section 8.

4.1.3 THE DEFAULT ANNUITY MARKET

Default regulations[12] which came into effect in 2019 require pension funds to set up a default annuity strategy for retiring members: an annuitisation solution which should be appropriate for most retiring members of that particular fund. This is simply a fund-proposed option and the retiree is not obliged to take this annuity. The regulations also set out conditions which must be met in order for a product to qualify as a default annuity strategy (for example living annuities are permitted, but the level of drawdown and investment choice is restricted). Some Trustee boards have chosen a life annuity from an insurer as their default annuity strategy and such annuity purchases have been classified as the "default annuity market". Depending on the provider, the pricing is done either on the retail basis or the institutional basis. The take-up of such life annuities has been poor[13] and we have not considered this market further.

4.2 Products offered in the retail and annuity markets

The types of products offered in the institutional and retail annuity markets differ. The product segmentation shown in Table 4 is typically used.

12 Amendment to the Regulations Issued In Terms of Section 36 of the Pension Funds Act, 1956 plus Insertion of Regulations 37 to 40 effective 1 March 2019

13 Given that these annuities tend to offer preferential terms and fees (zero commission, access to institutional asset management fees), the low take-up by members is worth exploring in further research. We suspect that this is driven by the challenge of effectively communicating this option to members.

Table 4 Types of life annuities offered in the retail and institutional markets

Increase type	Retail	Institutional
Level	Y	N
Fixed increase	Y	N
CPI-linked	Y	Y
With-profit	Some	Y

The retail market deals with individual product sales typically through independent advisors or tied agents. In this market the with-profit annuity appears to be too complex to be sold by the majority of advisors (or understood by their clientele). We are aware of two insurers selling with-profits annuities in the retail space, though somewhat confusingly these are priced on the institutional side of the business. We understand that the take-up of with-profits annuities in the retail market has been poor.

The institutional annuity market was born out of a need for pension funds to outsource their pensioners to an insurer. These funds would typically have targeted pension increases relative to inflation. Since one can only outsource pensioners if the annuity purchased for them is no worse than the annuity which they had in-fund, these products are either inflation-linked or with-profits annuities (which would be set at a post-retirement increase rate to target the same or higher pension increases as were provided for by the pension increase policy adopted by the fund).

4.3 Composition of the life annuity retail market across the largest insurers

The information contained in this section is based on data and information provided to us by the large insurers offering life annuities in the South African market: Old Mutual, Sanlam, Momentum, Metropolitan and Liberty. (We have treated Momentum and Metropolitan as two separate insurers as they function independently of each other in the area of annuity pricing.) Just Retirement was also approached but did not provide market data. The results shown in this section are limited to data provided to us by these insurers and therefore not necessarily representative of the total insurance market. Though annuity market data is not available, it is our understanding that these insurers account for the majority of the life annuity market. We have excluded with-profits life annuities from this section as these are not generally available in the retail market.

4.3.1 DISTRIBUTION OF ANNUITY POLICIES BY MONTHLY PENSION AMOUNT AND TYPE OF ANNUITY

Figure 1 shows the number of in-force policies by size of monthly pension amount as well as type of annuity.

As can be seen in Figure 1, the retail annuity market is dominated by level annuities with low pension amounts. This is the case across all insurers included in this investigation. This

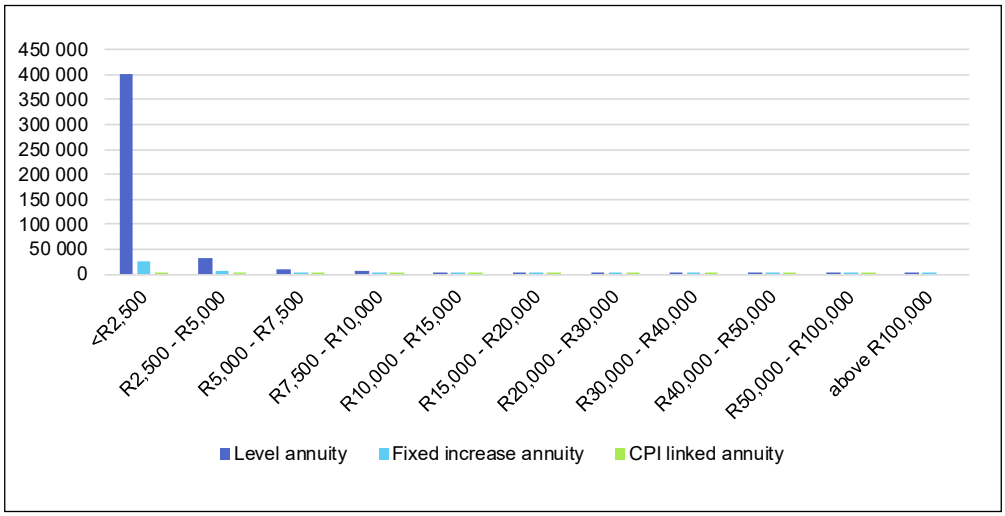

FIGURE 1 Number of life annuities in the retail market, by annuity type and monthly pension

is a surprising finding as we expected that individuals with low pension amounts would encash rather than annuitise their retirement benefits. It is possible that the source of these low pensions could be end-of-life living annuities being converted into life annuities; as individuals run out of their living annuity balances they choose instead to purchase a secure pension with the remaining funds.

The reason for this high number of low pension life annuities should be investigated further to effectively guide policy.

4.3.2 MARKET SHARE BY ANNUITY TYPE FOR EACH INSURER

Figure 2 shows the market share of each insurer by annuity type. The life annuity market is dominated by two insurers based on their current book size (measured by number of in-force policies).

Figure 3 shows the composition of the insurers' life annuity books by annuity type. Around ninety percent of the life policies for each insurer are level annuities, followed by guaranteed escalation annuities at around eight percent.

4.4 Recent trends in the retail life annuity market

Figure 4 shows the number of new life annuities sold in the retail market over the last four years and the split of those annuities by annuity type. Over the past four years the number of life annuities sold in the retail market has more than doubled. The pattern is consistent across the insurers studied. The proportion of level annuities sold has decreased from around 85% in 2018 to around 54% in 2021, with a much larger proportion of guaranteed escalation annuities being sold (13% in 2018 increasing to 42% in 2021). Based on information provided by one insurer, most of these guaranteed escalation annuities

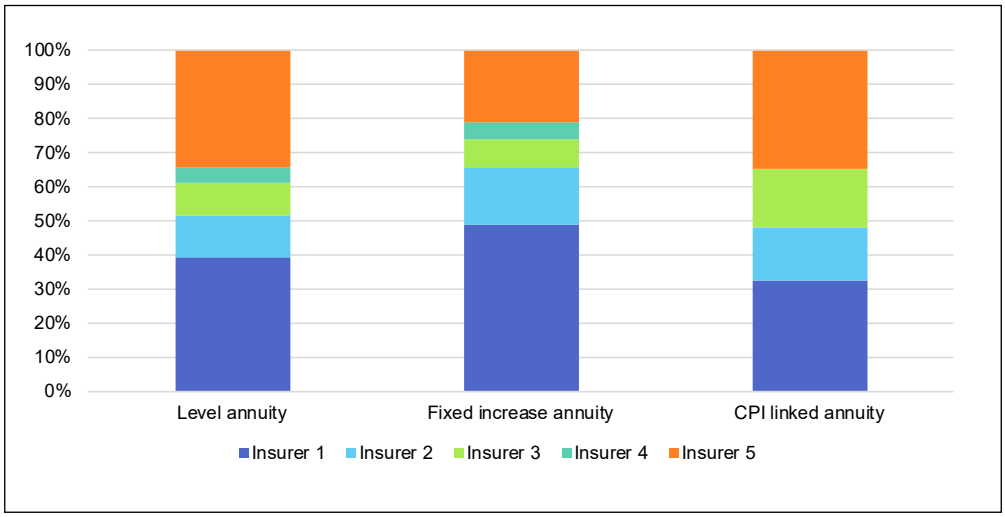

FIGURE 2 Market share (based on number of policies) of the insurers studied, by life annuity type

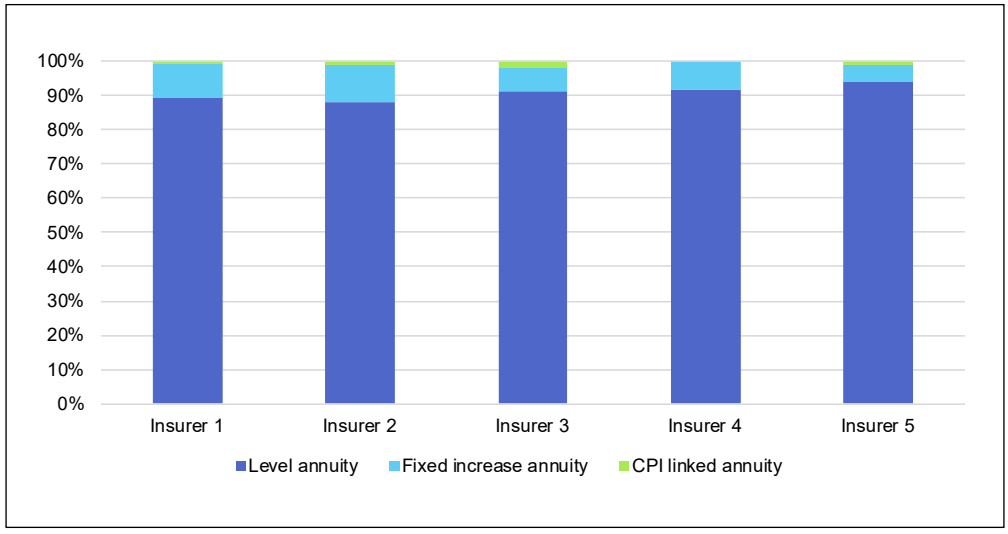

FIGURE 3 Composition of insurers' life annuity books in the retail market (based on number of in-force policies) split by annuity type

have pension increases guaranteed at 5% or 7% per annum. This is a significant shift in the market as individuals appear to have sought greater inflation protection.

Figures 5 and 6 show the number and proportion respectively, of new life annuities sold over the last four years by purchase amount. The number of new life annuities sold has increased across all purchase amounts. Most of the new business (in terms of number of policies) arises from purchase amounts of lower than R500,000. Again, this is surprising as

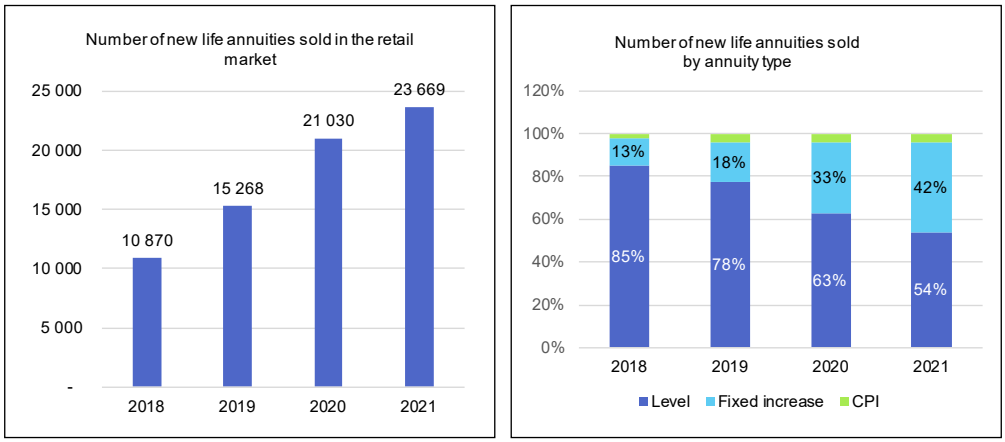

FIGURE 4 Number of new life annuities sold in the retail market across the insurers studied, from 2018 to 2021

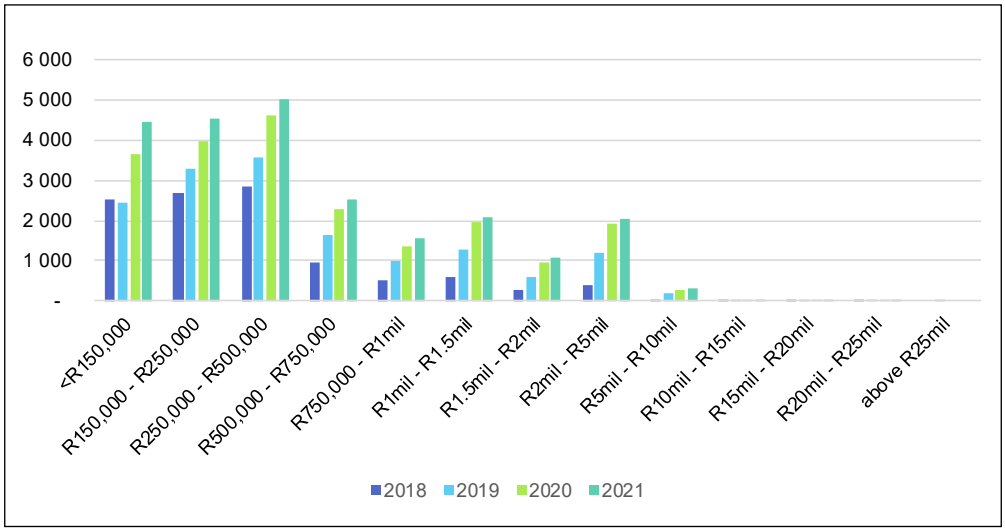

FIGURE 5 Number of new life annuities sold in the retail market, split by purchase price (capital payment)

the de-minimised amount for annuitisation is R165,000. Further research into the source of these small value annuities should be carried out to effectively guide policy.

PART II – IMPORTANT CONCEPTS

5. THE CONCEPT OF FAIRNESS AND VALUE

In this section, we define the concepts of "value" and "fairness" to establish how these qualities may be defined in the context of determining whether pricing of annuities can be considered as fair.

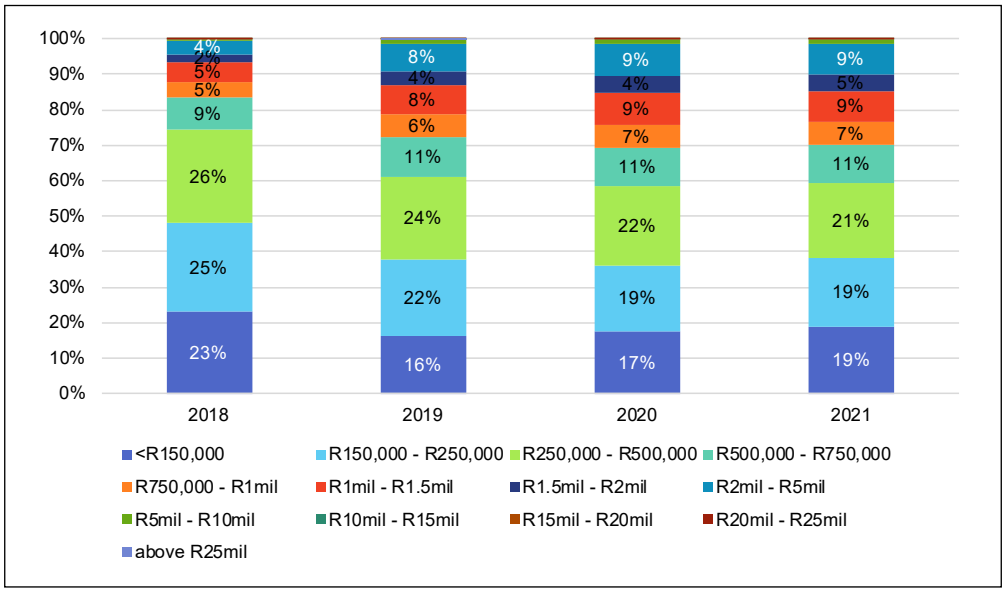

FIGURE 6 Proportion of new life annuity policies sold, by purchase price (capital payment)

5.1 Value

The *Oxford Learner's English Dictionary* defines "value" as:

- how much something is worth in money or other goods for which it can be exchanged
- how much something is worth compared with its price
- the quality of being useful or important
- beliefs about what is right or wrong and what is important in life
- the amount represented by a letter or a symbol

Investopedia (Caroline Banton updated 25 November 2020) defines "economic value" as:

> Economic value is the value that a person places on a good or a service based on the benefits they derive from the good. It is often estimated based on the person's willingness to pay for the good, typically measured in units of currency … is subjective and difficult or impossible to measure though there are approaches to estimating it.

The concept of value thus has two components:

- monetary value – does the product offer value for money; is the price paid reasonable for the benefit received, and
- perceived value of worth – is the product perceived to be useful and important.

This paper does not consider the "value" offered by annuity products in terms of whether these are considered as important by the public. This could be considered in future research.

5.2 Fairness

The *Oxford Dictionary* defines "fairness" as "impartial and just treatment or behaviour without favouritism or discrimination". The *Collins Dictionary* adds "the quality of being reasonable, right and just". Synonyms include impartiality, justice, equity, legitimacy.

An article about fairness on the Josephson Institute's Exemplary Leadership and Business Ethics blog[14] focuses on fair conduct in the workplace around promotions, hiring and firing, but the ethical principles are relevant to most contexts. To quote directly:

> Fairness is concerned with actions, processes, and consequences, that are morally right, honourable and equitable. In essence, the virtue of fairness establishes moral standards for decisions that affect others. Fair decisions are made in an appropriate manner based on appropriate criteria.
>
> Fairness… justice and equity… apply to virtually any situation where we want to judge whether an action contributes to a good, rational, caring society.

The article notes that there are two aspects to fairness: fair results (substantive fairness) and fair procedure (procedural fairness).

5.2.1 SUBSTANTIVE FAIRNESS

"*In general, a fair result is one in which people receive what they are due and what they deserve*". Of course, what people "deserve" can also be differently defined – by equality (everyone gets the same), distributive justice (resource allocation), merit (most competent gets the most) or social justice (benefits allocated according to need and costs allocated by ability to carry that cost). As such:

— Decisions requiring "fairness" will never please everyone – criticism is unavoidable;
— It is helpful if the criteria for assessing fairness are disclosed upfront;
— The procedure used must be and appear to be fair.

5.2.2 PROCEDURAL FAIRNESS

> requires that the process of decision making reveals a conscious concern with reaching a fair, just, and equitable result. Decisions should be made, and should appear to be made, carefully, honestly, and objectively …

14 https://josephsononbusinessethics.com/2010/12/fairness/#:~:text=Fairness%20is%20concerned%20with%20actions,manner%20based%20on%20appropriate%20criteria

5.2.3 REQUIREMENTS OF FAIRNESS

According to the article, fairness requires that we:

- Treat all people equitably based on their merits and abilities and handle all essentially similar situations similarly and with consistency.
- Make all decisions on appropriate criteria, without undue favouritism or improper prejudice.
- Promptly and voluntarily correct personal and institutional mistakes and improprieties.
- Not take unfair advantage of people's mistakes or ignorance.
- Fully consider the rights, interests and perspectives of all stakeholders, approach judgements with open-minded impartiality (setting aside prejudices and predispositions); consciously gather and verify facts, provide critical stakeholders with an opportunity to explain or clarify, and carefully evaluate the information.

We can draw on the above principles in thinking about the "fairness" of annuity pricing.

5.3 Cross subsidisation and homogeneous pricing

When considering annuity pricing, two opposing approaches could be considered as fair but which would result in very different outcomes: cross subsidisation and homogeneous pricing.

5.3.1 CROSS SUBSIDISATION

Cross subsidisation is the pricing mechanism whereby one group of individuals pays more than they should (given the expected level of benefits which they can expect to receive based on their own risk factors) and another group pays less than they should (given the expected level of benefits which they can expect to receive based on their risk factors), so that though the premium for each group is not correct for either group, it is correct on average. This is an important concept and is the fundamental risk-spreading tool used in insurance markets, including the annuity market. By pooling risk in this way, insurance products can be offered to high-risk individuals who would otherwise not be able to afford the premiums on such products. Without any cross subsidy from the lower-risk group the premiums payable by the high-risk group (who are most in need of insurance protection) would be unaffordable. This method is considered fair because everyone gets the same benefit for the same price.

5.3.2 HOMOGENEOUS PRICING

Homogeneous pricing is the pricing mechanism whereby the premium paid by an individual is directly related to the expected benefit to be paid to that individual which is directly

related to the risk of that specific individual. A higher expected benefit payment (or higher risk) results in a higher premium. At the extreme, if high risk individuals must pay for their exact expected benefit, the premiums would be unaffordable and those individuals who need cover the most would be excluded from the market. This method appears fair because the premium directly reflects the specific individual's expected benefit.

Determining the most efficient balance between cross subsidisation and homogeneous pricing is a fundamental judgement which insurance providers must make: finding the balance between pricing insurance to accurately reflect individual risk and pooling risk to widen market share but remain profitable and sustainable.

In general, in recent times there has been a shift in financial products from cross subsidisation to homogeneous pricing; from "everyone pays a group rate and gets the same benefits" to "each pay for themselves and their particular risk". We have seen this in the retirement industry in the move from defined benefit to defined contribution funds, and within defined contribution funds in the move from a smoothed bonus approach to individual member investment choice and daily unitisation.

However, cross subsidisation in certain other contexts remains acceptable or is unavoidable. For example:

— The medical schemes industry in South Africa operates on the basis of community rating, where the medical scheme is prohibited from charging an unhealthy person a higher premium than they charge a healthy person for the same set of benefits, even though they know that the unhealthy person will have higher claims. There is therefore a direct cross subsidy from the young and/or healthy to the old and/or sick.
— Costs in the pension system are often deliberately charged as a fixed percentage of salary or a percentage of assets rather than a Rand per member per month, even though the Rand value of the cost is the same for all members. This creates a deliberate cross subsidy from the rich to the poor.
— The South African tax system, being progressive, applies a higher marginal tax rate to higher income earners than it does to the lower income earners. This causes a deliberate direct cross subsidy from the rich to the poor.

We posit that society is largely comfortable with cross subsidies where these flow from the less vulnerable to the more vulnerable. For example:

— From the rich to the poor
— From the young to the old
— From the healthy to the sick

However, if a cross subsidy results in the vulnerable group of the pool subsidising the less vulnerable group (for example if the poor are subsidising the rich or the sick are subsidising the healthy), this fundamentally does not feel like a "fair" system.

5.4 Fairness and value in the pricing of annuities

For the purpose of this paper, in order for the annuity market and pricing to be considered "fair" and offer "value", it should have the following characteristics:

— The price of the annuity must be reasonable relative to the expected benefit received (unless there is an argument to be made that cross subsidisation would result in the less vulnerable subsidising the more vulnerable).
— The system should treat (and price) essentially similar situations similarly and with consistency.
— The annuity providers should "make all decisions on appropriate criteria, without undue favouritism or improper prejudice, promptly and voluntarily correct personal and institutional mistakes and improprieties and not take unfair advantage of people's mistakes or ignorance".
— The annuity providers should "fully consider the rights, interests and perspectives of all stakeholders, approach judgements with open-minded impartiality (setting aside prejudices and predispositions); consciously gather and verify facts, provide critical stakeholders with an opportunity to explain or clarify, and carefully evaluate the information."

6. THE CONCEPT OF ANTI-SELECTION AND ADVERSE SELECTION IN ANNUITY MARKETS

Before we delve any further into the investigation of the fairness of pricing of life annuities, we need to understand the concepts of anti-selection and adverse-selection and their impact on annuity pricing.

Anti-selection is an increase in the chance for a person to take out an insurance contract because they believe that their risk is higher than what the insurer has allowed for in the premium.

Adverse selection is the effect of anti-selection. Due to anti-selection those who have higher risk are more likely to seek insurance cover, resulting in higher premiums for the insured group to reflect higher claims experiences relative to the population experience. The higher premiums act as a deterrent for lower risk individuals to purchase insurance cover, exacerbating the claims experience of the insured group.

Poterba (2001) references Rothschild and Stiglitz (1976) who recognised that insurance buyers know more about their risk than the insurance companies who sell insurance. In a voluntary annuity market (where individuals can choose but are not forced to purchase an annuity) this means that individuals who know that they are likely to live a long time are more likely to purchase life annuities than those who know that they are likely to live for a shorter period. This means that those who purchase life annuities will have a higher-than-average risk of living for a long time. This adverse selection will be reflected in lower mortality rates among life annuitants than those which apply to the general population. This is the case in the South African market as described in Section 7.1.3.1.

Therefore, Poterba (2001) shows that generally the mortality of annuitants in the voluntary market is lower than that of annuitants in the compulsory market (where individuals are forced to annuitise), which is in turn lower than that of the general population. In addition, there is also evidence of anti-selection between products. Mortality of annuitants purchasing inflation-linked annuities is lower than that of individuals purchasing fixed escalation annuities, which is in turn lower than of those purchasing level annuities which is in turn lower than of those not purchasing annuities at all.

Drawing not only from UK experience but from experience in other countries with voluntary annuity markets, Poterba (2001) concludes that the reason that we sometimes observe low money's worth values (present value of expected annuity payments divided by purchase price) when annuities are valued using population mortality is not necessarily due to costs or high profits charged on the part of insurers, but rather possibly as a result of anti-selection. If actual annuitant mortality is used, the money's worth values (MWVs) were observed to be at least 95% in the countries surveyed.

> From the standpoint of a random individual in the population, the resulting MWV will be lower [in a voluntary market] than that when participation in the annuity market is compulsory.
>
> **This is important for discussions of how annuity markets might operate if a larger fraction of the population participated […] expanding the pool of individuals who purchase annuities would probably reduce the disparity between the mortality rates of the annuitants and those of the broad population.**

Poterba (2001) points to previous research which suggests that in order to curb the effect of anti-selection one could introduce:

— A requirement that all individuals annuitise all or a part of their accumulated retirement balance;
— In addition to the above, a restriction on the types of annuities which the market may offer for compulsory annuitisation – given that the array and complexity of available options make it difficult for retirees to make a selection.
— The author concedes that it is not clear whether restricting everyone as a result of some individuals' lack of financial acumen is appropriate, and that in some markets, firms and advisors have developed products to assist individuals in making complex financial decisions.

Poterba (2001)further concedes that compulsory annuitisation may have some drawbacks:

— There is no opportunity to tailor income to the needs of the individual annuitant, and
— There is no opportunity to tailor income to the risk tolerance of individual annuitants.

6.1 Impact of availability of living annuities on the pricing of life annuities

While the latest regulatory developments in South Africa do require some annuitisation of benefits at retirement, living annuities are permitted to be used as the annuitisation product. An individual who knows that they have risk factors which result in them having a shorter life expectancy than the general public will likely choose a living annuity rather than a life annuity for reasons outlined above. This means that the anti-selection problem persists and will result in the price of life annuities reflecting mortality that is lower than the general population, which will make life annuities more expensive and less attractive for lower income individuals than if living annuities were not permitted.

There is little research on quantifying this anti-selection effect. Mortality studies offer some insight and based on these, we estimate that the presence of anti-selection could increase annuity prices by some 5%–14% (Section 7.1.3.1).

7. THE IMPACT OF INCOME ON MORTALITY – A REVIEW OF MORTALITY INVESTIGATIONS

One of the factors identified in the determination of fairness of the pricing of annuities in Section 5, is whether the price of an annuity reflects the expected benefit received from the annuity. One of the key drivers of the expected benefit to be paid from an annuity is expected mortality of the annuitant (refer to Section 8 on pricing methodology). Shorter life expectancy means fewer benefit payments and therefore lower total expected benefits.

We have considered various mortality investigations in order to:

(a) Investigate the relationship between income and mortality and ascertain the expected impact on annuity pricing. Intuitively, we expect that those who are wealthier should live on average longer than their less wealthy counterparts as a result of various factors. These could include greater education around health, safer living environments and travel arrangements, greater access to healthcare and greater access to quality food and "comfort" purchases.

(b) Quantify the effect of anti-selection on annuity pricing. Intuitively we expect that individuals who consider themselves to have a longer life expectancy would tend to purchase a life annuity over a living annuity, as discussed in Section 6.

(c) Gain insights into the importance of mortality improvements in annuity pricing

7.1 South African mortality investigations

7.1.1 SA ANNUITANT STANDARD MORTALITY TABLES (SAIML98/SAIFL98) 1996–2000

These first standard tables of mortality of South African immediate annuitants (annuities pay for life and cease on death) were published by Dorrington and Tootla (2007) in the *South African Actuarial Journal*. Previous tables published (SA56–62; SA72–77 and SA85–90) were based on the experience of lives assured (products where the benefit is paid on death). Graduated rates were produced separately for males and females based on insurer experience for the period 1996–2000, but no other differentiation was made.

7.1.2 THE ANNUITANT MORTALITY REPORT PRODUCED BY THE CSI COMMITTEE (2001–2004) ("2012 CSI REPORT")

This report was published in 2012 by the Continuous Statistical Investigations ("CSI") Committee of the Actuarial Society of South Africa ("ASSA"), again looking at insurer annuitant mortality, this time over the period 2001–2004.

Graduated rates were produced for males and females but no income differentiation was made. This research did show that:

— the mortality rates for voluntary annuities were lower than those for compulsory annuities (below the ages of 80 years);
— the crude mortality rates for voluntary annuities were 75%–85% lower than for compulsory annuities for the 65–80-year age groups (and 53% lower for the 45–49 year age group).

While one could consider the impact of the different mortalities (compulsory versus voluntary annuities) on annuity rates to determine the effect of anti-selection on annuity pricing, the terminology is misleading in this regard. "Compulsory annuities" in this context are those purchased with retirement fund proceeds and receive favourable tax treatment. "Voluntary annuities" are those purchased with other sources of income. As such, the resulting difference in mortalities in this paper is not between the group choosing to purchase annuities and the general population, but rather the difference between the mortality of those who choose to purchase an annuity with their retirement fund proceeds and those who choose to purchase an annuity with other sources of income. As such, this paper is not helpful in determining the effect of anti-selection on mortality.

7.1.3 PENSIONER MORTALITY INVESTIGATION PRODUCED BY THE CSI COMMITTEE (2005–2010) ("2017 CSI REPORT")

This report was published by the CSI in February 2017, this time looking at the mortality experience of in-fund pensioners. The dataset was dominated by the experience of the Government Employees' Pension Fund ("GEPF"). This is the largest defined benefit fund in South Africa and requires that retirees take an in-fund pension at retirement.

As such, this study represents a group of pensioners who had no choice in taking a pension from the fund. This is fundamentally different to the group of annuitants included in the studies mentioned above, which represent individuals who had by choice purchased annuities at retirement from an insurer.

This study found the following:

7.1.3.1 Effect of anti-selection on mortality

The mortality experience of pensioners retiring in-fund on a compulsory basis was significantly worse than that of annuitants purchasing annuities from insurers by choice. The mortality rates of pensioners were 43.14 per mille (decreasing from 46.31 per mille in

2005 to 40.19 per mille in 2010) compared to the mortality rates of annuitants reported in the 2012 CSI investigation which were 31.29 per mille and the SAIML98 / SAIFL98 31.41 per mille.

We have used the mortality tables produced by this study (based on the mortality of pensioners) and those produced in the 2012 CSI report (based on the mortality of annuitants as described in ¶7.1.2) to estimate the effect of anti-selection on annuity rates (Table 5). This is done by comparing the annuity rates obtained using the pensioner mortality to those obtained using annuitant mortality while keeping the other variables (discount rate of 10% p.a. and inflation of 5% p.a. were used) constant.

Table 5 Estimation of anti-selection effect, based on annuity rates of mortality tables

Annuity rate	2012 CSI report Annuitant mortality (a)	2017 CSI report Pensioner mortality (b)	Possible impact of anti-selection on annuity cost (a/b)
Level annuity male	8.7	7.9	9.6%
Level annuity female	9.5	9.0	5.4%
CPI-linked male	12.8	11.2	14.0%
CPI-linked female	14.6	13.5	8.2%

The above is not intended to be an exact quantification of anti-selection. There may be other reasons besides anti-selection as to why the mortality differs between the pensioner and annuitant groups in the two studies. We can therefore consider this value to reflect the maximum possible effect of anti-selection on the mortality rates of these studies.

7.1.3.2 Effect of income on mortality

Unlike the previous studies, this study does investigate the effect of the pension income on mortality experience. Separate male and female tables were calculated for different income bands: <R10,000; R10,000–R30,000 and >R30,000.

The study found significant differences in the mortality between various income bands. For example, the mortality rates for 60–64-year-olds with a pension of less than R10,000 per month are around three times higher for males, and six times higher for females, than the mortality rates of those with a pension of more than R100,000 per month.

Based on these mortality tables and using a consistent set of assumptions (discount rate of 10% p.a. and inflation of 5% p.a. were used), we have calculated the annuity rate for a 60-year-old assuming that the produced mortality tables were applied (Table 6).

Based on the results in Table 6, we expect the cost of an annuity for a 60-year-old person with a pension of >R30,000 to be around 20–30% higher than the cost of an annuity for the same individual with a pension of less than R10,000 just to take the effect of income into account. Higher differences are observed for a CPI-linked annuity relative to the level annuity.

TABLE 6 Annuity rates for a 60-year-old based on different income bands

Annuity rate	Average mortality	Mortality income <R10,000	Mortality income R10,000–R30,000	Mortality income >R30,000	Impact of mortality on annuity rate – highest to lowest income
Level annuity male	6.92	5.85	6.55	7.21	23%
Level annuity female	8.02	7.00	7.91	8.23	18%
CPI-linked male	9.72	7.87	9.05	10.25	30%
CPI-linked female	11.98	10.02	11.76	12.41	24%

7.1.4 MORTALITY IMPROVEMENTS IN SOUTH AFRICA: INSIGHTS FROM PENSIONER MORTALITY

This paper looks at the mortality improvements in South African pensioner mortality based on experience from 2000–2019. Analysis is shown in aggregate, by gender and by monthly pension amount. Monthly pension amounts were categorised as <R1,500; R1,500–R3,531; R3,531–R7,818; and >R7,818.

The study showed that for females within the two lower pension income bands, mortality has worsened on an annual basis over the period studied, and in more recent years mortality for females in the two higher income bands has also started to worsen. Male mortality appears to have improved at most ages, though has also started to worsen in the lower income bands in more recent years.

> Overall the model shows that mortality improvements are slowing down in South Africa for both genders and across all ages. Larger mortality improvements are seen in the highest income band, but vary depending on age.

7.2 UK research considering the impact of income on mortality

7.2.1 HEALTH STATE LIFE EXPECTANCIES BY NATIONAL DEPRIVATION DECILES, ENGLAND: 2018 TO 2020 (Office of National Statistics, 2022)

The main findings from this investigation extracted directly from the source document are:

- In 2018 to 2020, males living in the most deprived areas were living 9.7 years fewer than males living in the least deprived areas, with the gap at 7.9 years for females; both sexes have seen statistically significant increases in the inequality in life expectancy at birth since 2015 to 2017.
- Females and males living in the most deprived areas of England saw a significant decrease in life expectancy between 2015 to 2017 and 2018 to 2020.
- In 2018 to 2020, females living in the most deprived areas were expected to live less than two-thirds (66.3%) of their lives in good general health, compared with more than four-fifths (82.0%) in the least deprived areas.

— There were significant decreases in female disability-free life expectancy at birth in both deprived and less deprived areas between 2015 to 2017 and 2018 to 2020.

As such, this study found that income has a significant impact on life expectancy as well as the number of years spent in good health. Mortality improvements were not observed (though the data does contain COVID-19 cases).

7.2.2 LIFE EXPECTANCY, HEALTHY LIFE EXPECTANCY, DISABILITY FREE LIFE EXPECTANCY BY NATIONAL DECILE OF AREA DEPRIVATION, ENGLAND: BETWEEN 2011 TO 2013 AND 2017 TO 2019 (Office of National Statistics, 2021)

The results of this study show the life expectancy at different ages for different income deciles (Table 7).

Table 7 Life expectancy for 60–64 year age group for different income deciles

Sex	Income Decile	2011–2013	2012–2014	2013–2015	2014–2016	2015–2017	2016–2018	2017–2019	Improvement in years from 2011 to 2019
Male	1	19.21	19.28	19.25	19.26	19.25	19.31	19.48	0.27
Male	2	20.24	20.31	20.29	20.34	20.37	20.46	20.6	0.36
Male	3	21.13	21.21	21.16	21.18	21.18	21.33	21.49	0.36
Male	4	21.92	22.05	22.07	22.13	22.08	22.19	22.29	0.37
Male	5	22.48	22.57	22.61	22.75	22.76	22.94	23.09	0.61
Male	6	22.95	23.09	23.17	23.26	23.21	23.36	23.51	0.56
Male	7	23.38	23.52	23.59	23.64	23.67	23.73	23.88	0.5
Male	8	23.77	23.87	23.87	23.97	24	24.18	24.3	0.53
Male	9	24.14	24.25	24.28	24.36	24.42	24.54	24.69	0.55
Male	10	24.94	25.06	25.13	25.27	25.3	25.4	25.49	0.55
years difference		5.73	5.78	5.88	6.01	6.05	6.09	6.01	
% difference		30%	30%	31%	31%	31%	32%	31%	
Female	1	22.47	22.5	22.41	22.41	22.28	22.2	22.27	–0.2
Female	2	23.35	23.38	23.27	23.28	23.18	23.31	23.39	0.04
Female	3	24.12	24.18	24.13	24.15	24.11	24.2	24.33	0.21
Female	4	24.83	24.84	24.81	24.82	24.83	24.83	24.98	0.15
Female	5	25.23	25.32	25.31	25.34	25.25	25.51	25.62	0.39
Female	6	25.62	25.72	25.66	25.72	25.71	25.9	26.04	0.42
Female	7	25.96	26.06	26.09	26.13	26.09	26.17	26.38	0.42
Female	8	26.2	26.31	26.34	26.41	26.41	26.56	26.68	0.48
Female	9	26.65	26.75	26.74	26.83	26.82	26.94	27.15	0.5

Female	10	27.44	27.55	27.62	27.74	27.73	27.81	27.93	0.49
years difference		4.97	5.05	5.21	5.33	5.45	5.61	5.66	
% difference		22%	22%	23%	24%	24%	25%	25%	

Life expectancy of the highest income decile was some 5–6 years (or some 30% for males and 25% for females) higher than that for the lowest decile.

Mortality improvement in life expectancy from 2011–2019 is negative for women in lowest decile and 0.5 years in the highest decile. For men this was 0.27 in the lowest to 0.55 in the highest decile.

7.2.3 PAST AND PROJECTED PERIOD AND COHORT LIFE TABLES: 2020-BASED, UK, 1981 TO 2070 (Office of National Statistics, 2022)

This study found that people aged 65 years in the UK in 2020 can expect to live on average a further 19.7 years for males and 22.0 years for females, projected to rise to 21.9 years for males and 24.1 years for females aged 65 years in 2045.

It appears that there is still some indication of mortality improvements, but as stated by LCP Consulting[15] the improvements appear to be decreasing relative to those experienced in prior years.

7.3 Summary: mortality investigations

Based on the above mortality investigations we can draw the following conclusions:

— Income has an impact on mortality as illustrated by both South African and international investigations (Section 7.1.3.2).

  Allowing for the differences in mortality by income using the tables produced by the 2017 CSI report (Section 7.1.3) results in annuity rates which are between 20% and 30% higher for those in the highest income category (monthly pension of more than R30,000) relative to those in the lowest income category (monthly pension of less than R10,000). The difference is higher for CPI linked (24%–30%) than for level annuities (18%–23%).

  Based on the UK experience, 60–64-year-old male individuals in the highest income decile live on average 30% (25% for females) longer than the individuals in the lowest decile.

— The presence of anti-selection affects the mortality in annuity pricing (Section 7.1.3.1).

  In South Africa, the mortality of pensioners (who do not have a choice around whether to take a pension or not) is higher than the mortality of annuitants who purchase annuities from insurers (who can choose not to purchase an annuity at all) (Section 7.1.3.1).

15 https://www.lcp.uk.com/media-centre/2021/12/twenty-million-adults-could-be-in-line-for-state-pension-age-reprieve-as-life-expectancy-improvements-collapse-even-before-the-pandemic/

Allowing for the difference in mortality between these two groups results in calculated annuity rates which are at maximum 10% higher for level annuities and 14% higher for CPI-linked annuities for the annuitants than those derived for pensioners. This quantifies the maximum impact of anti-selection on annuity pricing.

— Mortality improvements are slowing in South Africa and internationally.

PART III – SOUTH AFRICAN ANNUITY PRICING: IS THIS FAIR AND DOES IT OFFER VALUE TO THE LOWER INCOME MARKET?

8. SOUTH AFRICAN LIFE ANNUITY MARKET PRICING METHODOLOGY

The information contained in this section is based on our understanding of the pricing mechanisms within the South African context based on interviews which we held with the major insurers in the market: Old Mutual, Sanlam, Momentum, Metropolitan, Liberty and Just Retirement. This is not intended to be a rigorous investigation into the pricing models or bases used in annuity pricing (this would be a difficult task given that the pricing models are largely proprietary). What we aim to do in this section is to broadly describe the pricing philosophy. We then look at the relative fairness of the prices resulting from this methodology in Section 9.

8.1 Annuity pricing methodology

A number of assumptions need to be made in the pricing of annuities. As described in Section 5.3, insurers need to strike a balance between risk pooling and homogeneous pricing. This requires judgement on the part of the insurer and is where pricing becomes proprietary. Competitive pressures will also play a role in the final price.

The price of a life annuity is comprised of the following components:

— The expected present value of the future payments to be made under the annuity contract, plus
— The expected present value of the associated costs and expenses of the contract, plus
— The cost of regulatory and shareholder capital requirements, plus
— Risk and profit margins.

Each of these is described in more detail in the sections below.

8.1.1 EXPECTED PRESENT VALUE OF FUTURE PAYMENTS: MORTALITY ASSUMPTION

The mortality assumption determines how long the annuity payments are expected to be paid for taking into account the individual's life expectancy. The higher the mortality assumed, the shorter the annuitants are expected to live and the higher the starting pension (or the lower the cost of the annuity) is.

Insurers use proprietary mortality tables in annuity pricing. The mortality tables are based on either the insurer's experience or on standard mortality tables adjusted for the

mortality experience of the individual insurer. Insurers typically carry out mortality investigations every two to three years.

8.1.2 EXPECTED PRESENT VALUE OF FUTURE PAYMENTS – DISCOUNT RATE

The discount rate is used to discount the future expected annuity payments (liabilities) to present value, and is essentially the return which is expected to be generated by the assets backing the annuity liabilities.

Insurers use a bond yield curve, with adjustments, as the discount rate. The bond yield curve (typically the JSE Bond Yield Curve) represents the risk-free rate, with adjustments made for term and credit spreads, less margins for investment costs. There is judgement applied by the insurers in the spread adjustment, and competitiveness of the pricing is taken into account in this step.

8.1.3 EXPENSES, COSTS AND OTHER LOADINGS

Expenses and costs vary across insurers and may include intermediary fees or commission, administration and other business expenses, and monthly payment transaction fees.

The cost of regulatory capital is the cost of holding additional capital for solvency purposes as required by legislation. According to one insurer this accounts for up to around 2% of the price of a life annuity. Insurers may also have specific shareholder capital requirements which need to be reflected as an additional capital loading to the annuity pricing.

Finally, insurers make an adjustment for profit. This may be accounted for in the adjustment to the discount rate, as an adjustment to the capital requirement or as an additional standalone profit margin loading. This differs across insurers (and also across the business units and annuity types) and for obvious reasons we were not provided with further details around how this is applied and at what level.

8.2 Expected differences in pricing between retail and institutional life annuity business

As mentioned in Section 4.1, the retail and institutional sections of each insurer function in separate silos with very little overlap. As such, we can expect there to be some justifiable differences in retail and institutional annuity prices obtained from the same insurer.

8.2.1 DIFFERENCES IN MORTALITY RATES BETWEEN RETAIL AND INSTITUTIONAL BUSINESS

Differences in the mortality used by the retail and institutional section of an insurer may be different for a number of reasons:

— **Separate risk pools** It is important to note that the retail and institutional annuity sections within each insurer do not pool their mortality experience, but rather each has its own mortality table based on that section's experience. The retail and the institutional annuity businesses each do their own mortality investigations based

on their own experience and use those tables for their respective annuity pricing. Some of the insurers have some level of coordination between the two sections, to compare mortality experience, but this is not done on a formal basis and the retail and institutional sections generally operate independently in their mortality investigations and assumptions.

— **Anti-selection** Anti-selection exists in the retail market but not in the institutional market. This is because in the retail market, a retiring individual can choose whether or not to purchase a pension, and if so, which provider to use and which kind of pension to purchase. Individuals who expect to have a shorter life expectancy are more likely to encash their retirement benefits or take a living annuity. This means that the expected longevity of individuals who purchase a life annuity in the retail market is longer than that of the population of similar individuals in the institutional market. This concept has been illustrated in Sections 6 and 7.

— **Income-rating** Mortality assumptions are differentiated by age and sex for all insurers. In the institutional market, all the insurers reported that the mortality assumptions also take the income level of the annuitant into account (either by pension income or annuity purchase amount). This means that institutional annuity pricing recognises that a lower-income individual will live for a shorter period than a higher income individual, which results in a proportionately lower annuity rate for the lower income individual. For all but one of the insurers, this is not the case in the retail market, where income is not taken into account in the pricing of annuities. (The one insurer that does include income in its mortality assumptions in its retail annuity pricing also takes health status into account.)

8.2.2 DIFFERENCES IN FEES AND EXPENSES

Expenses differ between the retail and institutional market for all insurers and tend to be lower in the institutional market due to scale and lower initial costs and expenses (e.g. distribution and support costs). Once the annuity policies are in force, the actual cost to the insurer is the same whether the policy originated from the retail or the institutional section (although notably the insurers keep these in-force policies "on the books of" the section of origination).

8.2.3 DIFFERENCES IN THE DISCOUNT RATE

Through the adjustments made to the yield curve, insurers may use a different discount rate for institutional and retail annuity liabilities. Insurers contend that this is because institutional annuities have a more certain asset size and liability profile, while the asset and liability profile of the retail annuity business is constantly changing. The more certain asset and liability profile allows insurers to create a better investment management strategy to match the assets to the future annuity liabilities.

We understand that typically the discount rate (specifically the spread and margin

adjustments) used in the retail and the institutional annuity pricing is not necessarily the same, as the spreads applied may differ depending on internal business and financial objectives as well as asset-liability management factors.

8.2.4 DIFFERENCES IN REGULATORY CAPITAL COSTS AND PROFIT LOADINGS

We did not expect that institutional annuity business should have a different regulatory capital cost to retail annuity business, however some of the insurers reported that they may apply different capital loadings to annuity pricing across the business units. Presumably, if the institutional business has a lower capital loading (to improve competitiveness) this would need to be offset by a higher capital loading elsewhere in the business. Insurers were reluctant to provide more details on this aspect given the sensitive nature of how these judgements are used to adjust pricing.

8.2.5 COMPETITIVE PRESSURE

We note that retail annuity prices for most providers are publicly available[16] and insurers have sight of their competitors' rates. This is not true for the institutional business.

It appears to us that the pricing is more competitive in the institutional market with insurers being willing to price more aggressively for institutional business than they do for retail business.

9. SOUTH AFRICAN LIFE ANNUITY MARKET PRICING

The following sections illustrate the pricing data provided by the insurers studied. **We have used annuity rates to measure the pricing. An annuity rate is the purchase amount for a monthly starting pension of R1.**

9.1 Retail market pricing

In the retail market, we investigated the following:

(a) how much price differentiation there is between insurers who do not take income into account (since insurers emphasised the use of their own proprietary mortality tales and probable target market effect of their own annuitant population on their own mortality experience and thus pricing), and

(b) the effect of taking income into account in pricing by comparing the annuity rates from insurers who do not use income as a rating factor to those provided by one insurer who does.

We requested retail annuity rates from the five insurers included in the study who do not use income rating in the pricing of retail annuities (Old Mutual, Sanlam, Momentum, Metropolitan and Liberty) as well as from the one insurer who does (Just Retirement).

16 https://www.masthead.co.za/annuity-investment-rates/

Annuity rates were obtained for different life annuity types for a single life, 65-year-old male, allowing for no commission, no guarantee period and no spouse reversion as at 20 January 2022.

9.1.1 RETAIL MARKET PRICING – STATUS QUO – NO INCOME RATING

Figure 10 in Appendix A illustrates the annuity rates in the retail market for different types of life annuities.

As expected, the cost of a life annuity differs depending on the level of expected future pension increases (thus an annuity paying a level pension will be cheaper than that paying an inflation-linked pension). With the exception of one insurer, annuity rates are similar across insurers. If the most expensive insurer is excluded, annuity prices differ by no more than 5%.

The average retail annuity rate for a monthly pension starting at R1, calculated as the average annuity rate across the annuity providers (excluding the expensive outlier) is around:

— 8.3 for a level pension
— 11.7 for a pension increasing at 5% per annum
— 13.4 for a pension guaranteed to increase with inflation

9.1.2 RETAIL MARKET PRICING – EFFECT OF TAKING INCOME AND OTHER RATING FACTORS INTO ACCOUNT

By comparing the average annuity rates obtained above to the annuity rates provided by one insurer who does use income and health rating factors in its retail annuity pricing, we can see the impact of using income as a rating factor on annuity pricing. This is shown in Figure 7 in which the following definitions apply:

— **Average – no income rating** is the average annuity rate obtained in section 9.1.1 across insurers who do not take income into account as a rating factor
— **Low-income low uplift** is the annuity rate quoted by one insurer who uses income and health rating factors for a low-income individuals with few health problems
— **Low-income high uplift** is the annuity rate quoted by one insurer who uses income and health rating factors for a low-income individuals with many health problems
— **High-income no underwriting** is the annuity rate quoted by one insurer who uses income and health rating factors for a high-income individual without taking health into account.

From Figure 7 we can see that the annuity rate charged by the insurer who does take income into account for the low-income individual without health issues ("Low-income low uplift") is not significantly different from the average retail annuity rate quoted by insurers who do not take income into account ("Average – no income rating). This is a surprising result as we were expecting that taking into account the higher mortality associated with lower income would result in a lower annuity rate than that produced

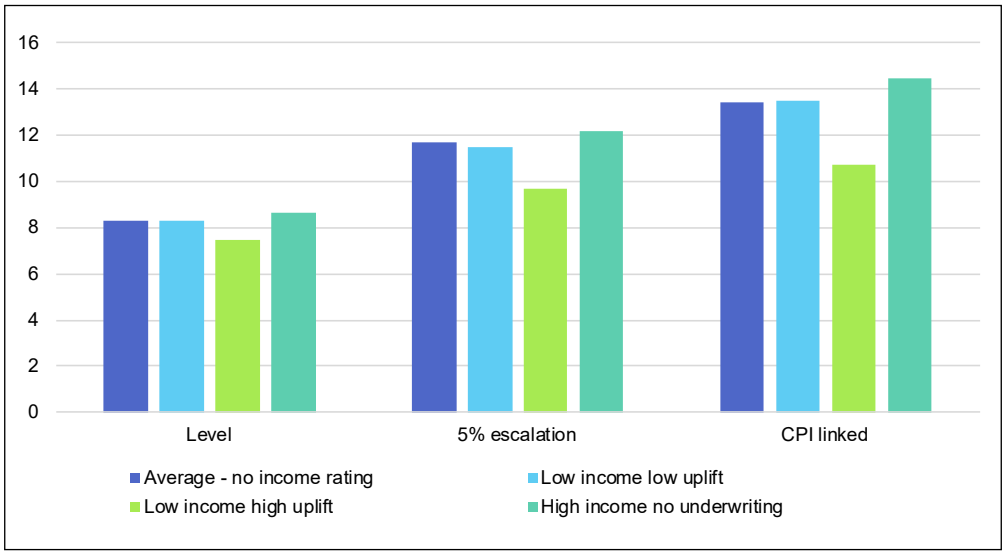

FIGURE 7 Annuity rates by type of annuity, for different levels of income, compared to the average annuity rate where income is not used as a rating factor

using average mortality rates. The difference in the annuity rate produced by taking health risk factors into account is significant. This indicates that "Low income low uplift" reflects the annuity rate for a super healthy low income individual rather than the average low income individual. The average low income annuity rate lies somewhere between "Low income low uplift" and "Low income high uplift" and is between 5% and 10% cheaper than the average retail annuity rate provided by insurers who do not use income rating in the pricing.

9.2 Institutional market pricing

In the institutional market we investigated the following:

(a) at what levels of income does different pricing apply,
(b) how much price differentiation there is by income in the institutional business within each insurer, and
(c) how the retail pricing compares to the institutional pricing.

We requested institutional annuity rates from the five insurers included in the study (Old Mutual, Sanlam, Momentum, Metropolitan and Liberty). Annuity rates were obtained for different life annuity types and at different incomes (pension amount or purchase price) for a single life, 65-year-old male, allowing for no commission, no guarantee period and no spouse reversion as at 20 January 2022.

9.2.1 AT WHAT LEVELS OF INCOME DOES DIFFERENT PRICING APPLY?

The institutional annuity rates provided by each insurer for different pension amounts and levels of purchase price are provided in Appendix B. Based on these we can conclude that:

— The monthly pension inflection points for differentiated mortality are different for each insurer. In general it appears that mortality differences in annuity rates are observed at monthly pension levels of R5,000, R10,000 and R20,000.

— The purchase amount inflection points for differentiated mortality are different for each insurer. In general it appears that mortality differences in annuity rates are observed at purchase amount levels of R250,000, R500,000, R2.5 million and R5 million.

9.2.2 RETAIL VS INSTITUTIONAL PRICING

We have compared the institutional annuity rates for different incomes to the annuity rate in the retail market (where no income rating is used) for each insurer in Appendix B. A summary of the results is provided below. Please note that the insurer order is different to that in Section 9.1.

9.2.2.1 Institutional spread (highest to lowest income)

The difference in annuity rate between the highest and lowest income individual in the institutional market by insurer and annuity type are shown in Table 8. These differences illustrate the impact of income on mortality and resulting annuity rate.

Table 8 Institutional spread: the difference in annuity rates for the highest vs lowest income individuals within the institutional market for each insurer by type of annuity.

Institutional spread	Insurer 1	Insurer 2	Insurer 3	Insurer 4	Insurer 5
Level annuity	17%	18%	6%	n/a	6%
Guaranteed (5%) annuity	23%	24%	8%	12%	12%
CPI-linked annuity	27%	28%	11%	n/a	16%

As can be seen from Table 8, Insurers 1 and 2 have significantly higher differences in annuity rates between lower and higher income individuals (17%–28%) than Insurers 3 and 5 (6%–16%). This could indicate the use of a more aggressive mortality differentiation. However, because we know that for Insurer 3 this is largely a function of the spreading of expenses, we assume that the same applies to Insurer 5. The true differential between low- and high-income annuity rates is thus assumed to be that of Insurer 1 and 2, i.e. 17% for a level and 27% for a CPI-linked annuity.

9.2.2.2 Retail annuity rate relative to lowest income institutional annuity rate

The difference in the retail annuity rate and the institutional annuity rate for the lowest income individual by insurer and annuity type are shown in Table 9. These differences

illustrate the impact of anti-selection and other factors on annuity pricing for the same individual accessing the annuity from different markets.

TABLE 9 Retail relative to lowest income institutional: the difference in retail annuity rates and institutional annuity rates for the lowest income individuals for each insurer by type of annuity

Retail relative to lowest income institutional	Insurer 1	Insurer 2	Insurer 3	Insurer 4	Insurer 5
Level annuity	19%	21%	1%	n/a	8%
Fixed escalation (5%)	28%	29%	5%	n/a	7%
CPI-linked annuity	31%	37%	6%	n/a	22%

As can be seen from Table 9, Insurers 1 and 2 have significantly higher differences in annuity rates between low-income individuals in the retail and institutional markets (19%–37%) than Insurers 3 and 5 (1%–22%).

9.2.2.3 Lowest income annuity rates – institutional vs retail

There is large variation in the institutional annuity rates for annuities with the lowest purchase amount or pension income, with annuity rates between insurers varying by around 20%–24% (Figure 8) depending on annuity type.

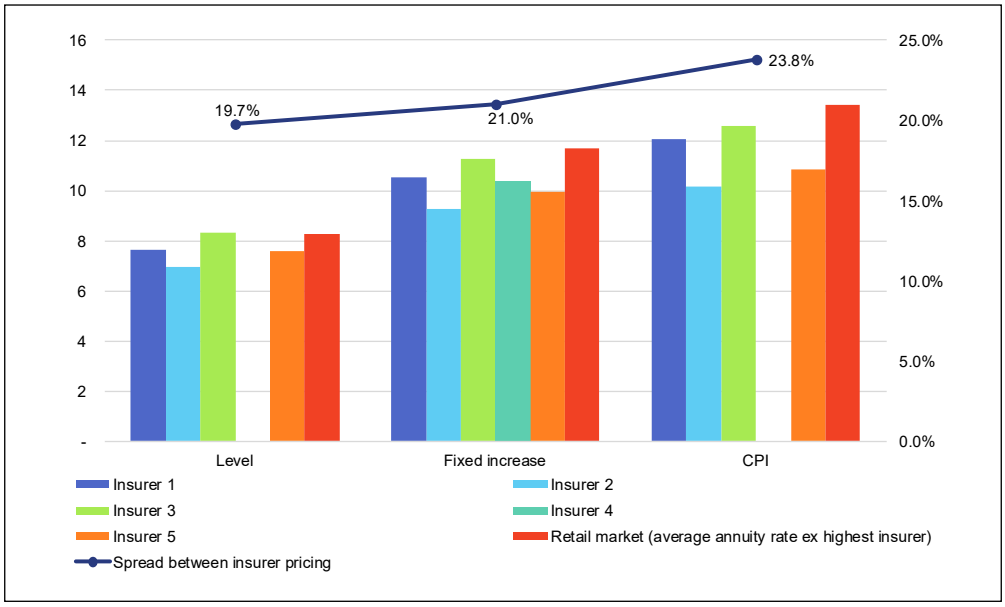

FIGURE 8 Institutional annuity rates for each insurer in the lowest purchase amount (or pension income) category by annuity type, compared to the average retail annuity rate as calculated in Section 9.1.1

TABLE 10 Lowest income annuity rates – institutional vs retail

Lowest income annuity rate	Level	Fixed escalation	CPI
Highest vs lowest institutional	19.7%	21.0%	23.8%
Retail vs average institutional	8.5%	13.8%	17.5%
Retail vs minimum institutional	18.9%	25.8%	32.2%

As can be seen from Table 10, the average retail annuity rate is around 9%–18% more expensive than the average institutional annuity rate for those in the lowest income group. At the extreme, low-income individuals in the retail market are paying 19%–32% more than they would be charged in the institutional market.

9.2.2.4 Highest income annuity rates – institutional vs retail

There is also large variation in the institutional annuity rates for annuities with the highest purchase amount (or pension income), with annuity rates between insurers varying by around 11%–22% (Figure 9).

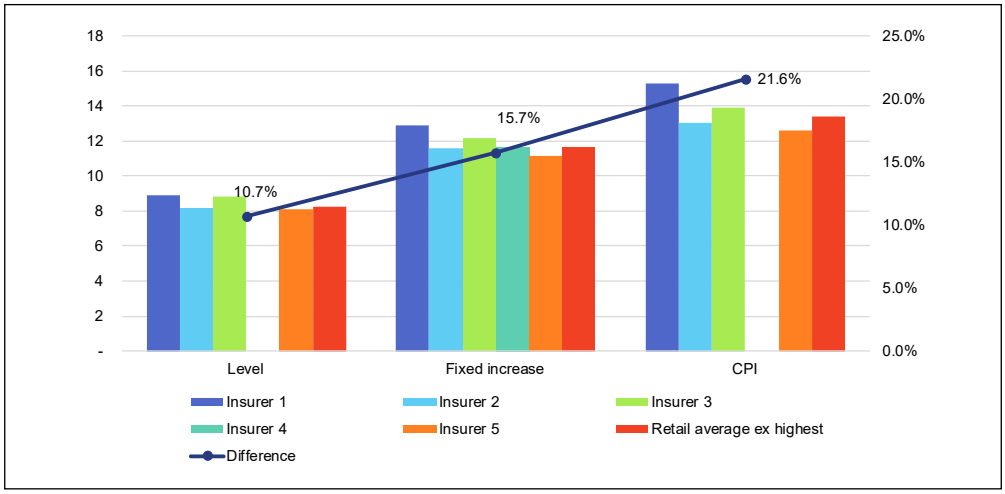

FIGURE 9 Institutional annuity rates for each insurer in the highest purchase amount (or pension income) category by annuity type, compared to the average retail annuity rate as calculated in Section 9.1.1

TABLE 11 Highest income annuity rates – institutional vs retail

Highest income annuity rate	Level	Fixed escalation	CPI
Highest vs lowest institutional	10.7%	15.7%	21.6%
Retail vs average institutional	–2.7%	–1.7%	–2.2%
Retail vs maximum institutional	–7.3%	–9.4%	-12.4%

As can be seen from Table 11, the average retail annuity rate is around 2%–3% cheaper than the average institutional annuity rate for those in the highest income group. At the extreme, high-income individuals in the retail market are paying 7%–12% less than they would be charged in the institutional market.

9.3 Summary: retail and institutional market pricing

We can summarise the pricing observed in the retail and institutional markets as follows.

9.3.1 IN THE RETAIL MARKET

— Annuity pricing is publicly available for the large insurers and visible to all competitors.
— There is little variation in annuity rates by insurer. If the most expensive insurer is excluded the variation between annuity rates of different insurers is less than 5%.
— Annuity pricing is differentiated by age and sex only, thus individuals will pay the same price for a life annuity regardless of their income.
— Only one insurer differentiates annuity pricing by income. The same insurer also differentiates annuity pricing by other risk factors such as lifestyle and disease burden.
— The average retail annuity rate provided by the insurers who do not rate by income is around 5%–10% higher than the expected annuity rate for an average low income individual provided by the insurer who does rate by income.

9.3.2 IN THE INSTITUTIONAL MARKET

— Annuity pricing is not publicly available and thus the competitive incentive to arrive at the lowest possible rate is higher than in the retail sector.
— There is large variation in annuity rates across the insurers studied – more for the lower income (20%–24%) than for the higher income (11%–22%) group.
— Annuity pricing is differentiated by age, sex and income (or annuity purchase amount). Individuals in the highest income band will pay 17%–28% (Insurer 1 and 2) more for a life annuity than those in the lowest income band. (Lower differences are observed for the other two insurers but we think this is due to the spreading of expenses.)
— The monthly pension inflection points for differentiated mortality are different for each insurer. In general it appears that mortality differences are observed at monthly pension levels of R5,000, R10,000 and R20,000.
— The purchase amount inflection points for differentiated mortality are different for each insurer. In general it appears that mortality differences are observed at purchase amount levels of R250,000, R500,000, R2.5 million and R5 million.

9.3.3 COMPARING RETAIL AND INSTITUTIONAL ANNUITY RATES

— The price of R1 of starting monthly pension in the retail market is around 9%–18% more expensive than the average institutional annuity rate for those in the lowest

income group. At the extreme, low-income individuals in the retail market are paying 19%–32% more than they would be charged in the institutional market.

— The price of R1 of starting monthly pension in the retail market is around 2%–3% cheaper than the average institutional annuity rate for those in the highest income group. At the extreme, high-income individuals in the retail market are paying 7%–12% less than they would be charged in the institutional market.

9.4 Feedback from insurers

9.4.1 WHY IS NO INCOME RATING APPLIED IN THE RETAIL ANNUITY MARKET

Given the large variation in annuity rates observed between low- and high-income individuals in the institutional market (17%–28% for Insurers 1 and 2) we have asked insurers as to why income rating is not applied in the retail market. Reasons as provided are listed below:

— Income rating does not make a significant difference in a high interest rate environment.

— Lack of income-rated mortality data on the retail side: this information was not gathered by the insurers in the past and as such it is difficult to set up income rated mortality tables from the current retail book.

— When pensions are purchased in the institutional market, the pension income of the individual is known and provided by the fund or employer who wants to purchase those pensions from the insurer. When a pension is purchased in the retail market, the only income-related information available to the insurer is the purchase amount. There is no system for gathering or validating the actual income of the individual. Purchase amount is not considered to be a good indicator for income as an individual can split their available fund credit between different products or insurers. Therefore, rating by income is impractical in the retail environment.

— One insurer indicated that as they target the low-income sector, the undifferentiated annuity rate already reflects low-income mortality.

— There is no market for these annuities and so investment in changes to pricing to reflect accurate mortality by income is not worth it.

— Introducing income rating generally seems to make the insurers nervous that they will be exposed to more risk if they offer income rated annuities in the retail market due to fraud by annuitants (pretending to have lower income) or unexpected mortality improvements. To deal with this they may add pricing margins to the annuity rate which would likely erode the effect of income rating.

9.4.2. ARE THE INSURERS COMFORTABLE WITH THE SPREAD BETWEEN RETAIL AND INSTITUTIONAL ANNUITY RATES FOR LOW-INCOME INDIVIDUALS

Given the large variation in annuity rates observed between retail and institutional annuity rates (For Insurer 1 the spread is 19%–31% and for Insurer 2 this is 21%–37%), we asked

insurers if they thought that this gap was a reasonable one. Their answer was that this size of gap is to be expected and reflects:

— anti-selection which is present in the retail market but not in the institutional market,
— higher costs in the retail market, and
— risk margins in the retail market as typically no underwriting is carried out and mortality improvements are uncertain.

Section 10 evaluates the results and explanations provided by the insurers.

10. IS THE ANNUITY MARKET FAIR TO LOW-INCOME WORKERS

10.1 Fairness of retail market annuity pricing

For the purpose of this paper, in order for the annuity market and pricing to be "fair" and offer "value", it should have certain characteristics as listed in Section 5. We evaluate whether these are met.

Criterion 1: The price of the annuity must be reasonable relative to the expected benefit received (unless there is an argument to be made that a cross subsidy approach would result in the less vulnerable subsidising the more vulnerable)

Section 7 illustrates that income has an effect on mortality. The calculated expected annuity rate difference between the highest and lowest income individuals based on income rated mortality tables produced by the 2017 CSI report is 20%–30% (Section 7). This level of price differentiation is indeed seen in institutional market pricing where high-income individuals pay 17%–28% more than lower income individuals (Insurer 1 and 2) (Section 9.2.2.1).

The lack of income rating in the retail market means that the annuity rate does not reflect the expected mortality and therefore the expected benefits to be received by individuals. In theory, the use of the same annuity rate regardless of income disadvantages the lower income (shorter living) individuals and benefits higher income (longer living) individuals which results in a perverse cross subsidy from the low-income to the high-income sector. Thus this criterion is not met at face value.

However, the mortality assumption used by insurers in the calculation of the annuity rate is based on the specific mortality experience of the retail group of annuitants. Therefore if the annuitant pool on which the mortality assumption was based was reflective of predominantly shorter living lower income annuitants, the annuity rate would reflect the mortality of this shorter living group and not disadvantage the lower income individual (though it would benefit the higher income individual).

The high number of low amount retail annuity policies (Section 4) could indicate that this is indeed the case. Further, price data provided by the only insurer who does take income into account, indicates that the annuity rate for the low-income individual when

taking income into account is not significantly different from the non-income rated annuity rate of the other insurers. This result is unexpected and disappointing and indicates either competitive pricing overshadowing the impact of the insurer's own mortality experience, or that low-income mortality is implicitly used in the pricing of non-income rated retail annuities.

Either way, based on the pricing received, it appears that all else remaining equal, low-income individuals are not disadvantaged by the lack of income-rated pricing in the retail market, but rather that high-income individuals are advantaged. In this case, the price of the annuity for the high-income individuals is not reasonable (too low) relative to the benefit received and on this basis the pricing could be considered as unfair.

Criterion 2: The system should treat (and price) essentially similar situations similarly and with consistency.

Income rating is used in the pricing of retail life insurance (which is penal to the lower income individuals) but not in the pricing of annuities (which is again penal to the lower income individuals). This is an inconsistent practice.

A low-income individual will pay some 19%–37% (Insurer 1 and 2) more in the retail market than in the institutional market (Table 9). This indicates that similar situations are not priced similarly in the retail and institutional market. Though there is some differentiation expected between the retail and institutional annuity rates due to anti-selection, Section 7 estimates that this accounts for a maximum of 10%–14%. The remainder of the pricing difference between institutional and retail annuities (9%–23%) is driven by the difference in yields, margins and costs (Section 9.4.2). Though this may be theoretically justified based on current practice and methodology, a 9%–23% price difference for a low-income individual is significant and should be addressed as this appears inappropriate regardless of the reason.

Based on the above, it is our view that the system does not treat similar individuals similarly and with consistency.

Criterion 3: The annuity providers should "make all decisions on appropriate criteria, without undue favouritism or improper prejudice, promptly and voluntarily correct personal and institutional mistakes and improprieties and not take unfair advantage of people's mistakes or ignorance".

Though insurers know that income affects mortality and they are applying those differences in annuity pricing in the institutional market, they are not applying the same in the retail market. Reasons for this given by insurers as listed in Section 9.4.1 are discussed below:

— Income rating does not make a significant difference in a high interest rate environment.
  Author comment: This argument does not make sense to us as the institutional market where income rating is applied functions in the same high interest rate environment.
— Lack of income-rated mortality data on the retail side: this information was not

gathered by the insurers in the past and as such it is difficult to set up income rated mortality tables from the current retail book.

Author comment: Purchase amounts are recorded and can be used as a proxy for income. Post-code or other proxies can be used for income.

— When pensions are purchased in the institutional market, the pension income of the individual is known and provided by the fund or employer who wants to purchase those pensions from the insurer. When a pension is purchased in the retail market, the only income-related information available to the insurer is the purchase amount. There is no system for gathering or validating the actual income of the individual. Purchase amount is not considered to be a good indicator for income as an individual can split their available fund credit between different products or insurers. Therefore, rating by income is impractical in the retail environment.

Author comment: There are conceivably a number of ways of obtaining the income details of an individual, for instance through a credit check, through SARS or through the banking system. This is especially straightforward at the point of retirement where last salary confirmation could be obtained from the employer.

— One insurer indicated that as they target the low-income sector, the annuity rate already implicitly reflects low-income mortality.

Author's note: based on pricing provided it appears that this may indeed be the case, and further that this may be the case for all insurers. Even so, the benefit enjoyed by the higher income earners from the lack of correct income-rated pricing is problematic.

— There is no market for these annuities and so investment in changes to pricing to reflect accurate mortality by income is not worth it.

Author's note: Based on market data received from insurers, this does not seem to be true. Market data shown in Section 4 indicates that the majority of in-force annuity policies are level annuities, predominantly in the lower income sector. Life annuity sales have increased in the last five years, with over 60% of new policies with a purchase price of less than R500,000 and 75% with a purchase price of less than R1 million. In addition, implemented and proposed legislative changes mean that more individuals will be retiring with larger retirement benefits and so the total market will increase in both size and population diversity.

— Introducing income rating generally seems to make the insurers nervous that they will be exposed to more risk if they offer income rated annuities in the retail market due to fraud by annuitants (pretending to be lower income to access the lower annuity rate) or unexpected mortality improvements. To deal with this they would likely add pricing margins to the annuity rate which would likely erode the income rating.

Author's note: Assuming that income data can be obtained as per point above, this is a moot point as the risk is not greater than with an institutional annuity. As described in Section 7, mortality improvements in South Africa and internationally are slowing.

Criterion 4: The annuity providers should "fully consider the rights, interest and perspectives of all stakeholders, approach judgements with open-minded impartiality (setting aside prejudices and predispositions); consciously gather and verify facts, provide critical stakeholders with an opportunity to explain or clarify, and carefully evaluate the information."

We have not seen anything in this research which would suggest otherwise, though as described above, there seems to be little enthusiasm to make changes in the retail market. We note that in the retail market, the annuity rates are not differentiated between insurers with a maximum price difference of 5% compared to the institutional market where price differences are higher (20%–24% for the low-income group). This may be driven by similar experience in the retail market. It could also indicate low levels of price competition or high levels of apathy as annuity rates are publicly available.

The research highlights that there are material inconsistencies in pricing between the retail and institutional annuity markets and between various insurer products (life insurance vs life annuities). These inconsistencies appear to consistently prejudice the lower income sector of the market. Even if these inconsistencies are technically justified based on past practice and methodologies, it may be desirable to structure the annuity rates in such a way that they appear fair to an external observer as well.

Before considering any policy intervention or direction, we should consider what it is that the annuity market is aiming to achieve, to ensure that appropriate policies are adopted.

10.2 Fairness in terms of other aspects

Though unrelated to pricing, we point out other aspects of the annuity market which in our view are unfair and should be addressed.

10.2.1 RISK TRANSFER

The retirement landscape in South Africa has changed dramatically in the last 20–30 years with a move from defined benefit to defined contribution funds. With this change has come risk transfer from employers and funds, who could appoint multiple advisors to manage these risks, to individuals. As most individuals are not equipped to make many of the decisions required for the management of long-term liabilities, they rely on the advice of a financial advisor. Anecdotally, trusted family, friends and increasingly social media also weigh in on the decision, regardless of qualifications. Experience has shown that outcomes of individuals managing these risks have been poor to date with low levels of contributions, preservation and annuitisation. Where annuitisation does happen, this is likely through a living annuity.

Transferring risk to individuals without appropriate regulatory restrictions in place is not fair where the results of inappropriate choices are so significant, and when it is well-known that behaviour (substantiated in other markets) is driven by instant rather than delayed gratification.

10.2.2 PRODUCT COMPLEXITY AND APPROPRIATENESS

As needs of individuals change, financial products develop to meet those needs. While these products are suitable for the purpose for which they were intended, their indiscriminate use outside of the problem which they were trying to solve can lead to poor outcomes and unintended consequences.

For example, living annuities in South Africa were introduced as annuity products for the wealthy. Their flexibility and need for advice and ongoing management was appropriate for this initial purpose and target market. Living annuities were not designed nor were they ever intended to provide income security at retirement or an annuity solution for the majority of the population. They are structurally not fit for that purpose. Unfortunately, no restrictions were placed on their use and currently they dominate the annuity market. Their popularity has hinged on the sale of individualised flexibility and inheritability by financial advisors who are also financially incentivised to sell a living rather than a life annuity. The need for financial advice also makes this an inappropriate product for the majority of the population. High drawdown rates and high investment and advice fees are speculated to result in poor outcomes. This should be investigated in further research.

Another example of a product which is possibly stepping outside of its intended purpose is the with-profit annuity in its current form. It is our understanding that these were originally used in South Africa in order to allow insurers to take over employers' post-retirement obligations and match a targeted (not guaranteed) pension increase promise. They were designed to meet a corporate and not an individual need. As such, their complexity of design and pricing is appropriate for an entity which has advisors who can advise it in making a choice related to a with-profit annuity. These products are difficult to compare and the pricing can be easily manipulated to reflect a higher starting pension by using a lower post-retirement interest rate. In addition, the reliance on future performance to generate future pension increases means that the selection of provider requires an evaluation of the skill of the asset manager managing the assets (similar to the living annuity) which is not a simple task. The opaqueness of the treatment of mortality losses and the fact that the annuitant pool ultimately carries this risk is in our view not well understood. It is easy to just compare the starting pension provided to choose one provider over another without understanding the complexity and risks involved. As such, again, these products require significant and appropriate financial advice if they are to be used appropriately. Because these products offer a cheaper version of what is close (but yet so far) to a CPI-linked annuity, they may become a go-to product for individuals in the retail market now that they have been introduced in this market. We question whether this is appropriate and whether financial advisors are equipped to deal with the complexity of these products. The need for financial advice also makes this an inappropriate product for the majority of the population.

Allowing all products to be available to all individuals without restrictions or

consideration of appropriateness of the product for its purpose is not appropriate when it comes to providing income security in retirement.

10.2.3 INFORMATION ASYMMETRY AND PRODUCT COMPLEXITY CREATE THE NEED FOR ADVICE

Information asymmetry between the insurer and the individual leads to the need for financial advice. Product complexity increases reliance on financial advice which increases costs. Allowing all complexity of products to be available to all individuals and thus essentially "forcing" them to obtain costly financial advice is problematic.

10.2.4 COMMISSION STRUCTURE

As illustrated in Section 3.5.2, the commission structure of living and life annuities creates a financial incentive for financial advisors to sell living annuities. This creates an immediate conflict between the interests of advisors and annuitants which can result in undesirable outcomes.

10.2.5 MARKET SEGMENTATION

Different rules apply to different sectors or providers of benefits which again creates complexity and inconsistency.

Though a lot of work has been done to harmonise the treatment of various annuity products, there is still a lot of fragmentation. For example, living annuities which form part of the default annuity strategy of retirement funds are restricted in drawdowns and investment choices and require the Trustees to consider the sustainability of the drawdowns elected by individuals. This is not the case for in-fund living annuities that do not form part of the default annuity strategy or for retail living annuities. Also, while in-fund living annuities are restricted in investments by Regulation 28 of the Pension Funds Act, this is not the case for retail living annuities. While this may be appropriate for top-up living annuities (those which are used to supplement a secure income), it is not appropriate for living annuities which are used to provide retirement income security.

Another example, as has been illustrated in this paper, is the fragmentation of the annuity market, not just between life and living annuities (which creates anti-selection and prejudices the life annuity market which is the more appropriate market for low-income individuals), but between insurers, and even within insurers in the retail versus institutional market split. While segmentation is helpful and desirable in some circumstances, it is not helpful when the product is aimed to provide retirement income security for the majority of the population.

Most importantly, in deciding whether the market is fair or not and introducing policy interventions, it is critical to bear in mind the problem which we are trying to solve. This is further developed in Part V.

PART IV – LOOKING AT ALTERNATIVES

11. INTERNATIONAL MARKETS

In order to ascertain whether there was international experience with a similar challenge, or a potential solution, we have considered the retirement benefit models of some 58 countries (see Appendix A for the full list). An immediate observation from this analysis is that a "best practice" or wholly successful regime has not emerged in any of the retirement systems studied, and the retirement problem (particularly the decumulation phase) has not been solved.

Many countries are undergoing, have recently undergone or are deliberating some form of pension reform. The trend has been for reform to focus on the accumulation phase (how to increase levels of retirement savings) rather than the decumulation phase (the ideal way to manage and use these accumulated savings in retirement). Common reform agendas in the accumulation phase include raising the normal retirement age, encouraging or mandating contributions towards and/or preservation of retirement savings, and enrolling the informal sector in the pension system to increase coverage. In the decumulation phase, compulsory annuitisation is rare and life annuity markets are not commonly highly regulated. The experience globally is that relative to living annuities or the option to take lump sum benefits, life annuities have not been a popular choice among retirees.

Of the 58 countries, countries with the following characteristics were excluded from further consideration:

— Countries with considerable statutory benefits: Statutory benefits (where a pension is paid by the government and funded from tax revenue) are the primary source of pension benefits in more than half of the list of countries. We have not considered these countries further, as reliance on the state pension undermines the importance and development of a private annuity market.

— We have also not investigated the structure of these statutory systems in this paper as the brief was to consider the fairness of pricing in the private insurance market. Given the recent discourse around the implementation of a National Social Security Fund in South Africa, this may be a useful future investigation.

— Countries in which annuitisation is mandatory or common, but where the benefits relied on by most of the population are still primarily statutory.

— Countries where pension benefits from supplementary plans are primarily taken as a lump sum: The annuity markets in these countries are typically underdeveloped and unregulated. The number of countries where a full lump sum benefit is offered and taken at retirement is notable. There has been a trend over recent years to increase the flexibility in pensions systems in order to encourage pension savings. The UK example is apt.

We have selected countries for further analysis on the basis that they have an established retirement savings system, or where annuitisation of benefits at retirement is either mandatory or common.

11.1 Country specific experience

11.1.1 CHILE

Chile's retirement system underwent significant reform from the 1980s. The scope of reform as well as the access to data from Chile's retirement system contribute to Chile being a common reference and case study in retirement regimes. The level and complexity of reform, which is particularly unusual for a developing country, has led to a large pension savings and annuity market. Besides a sophisticated system to encourage saving and annuitisation, this has been attributed to restrictions on accessing savings (preservation) and lack of an adequate state pension to fall back on.

All workers are required to contribute to the private DC system administered by qualified Pension Fund Administrators (AFPs). AFPs are highly regulated single-purpose private companies. Regulated elements include contribution rates, declared investment returns (returns are smoothed with regulated reserving requirements), and fees and expenses. The system supplements social welfare benefits financed by the central government. Supplementary employer-provided private benefits, outside of the AFPs, are uncommon.

At retirement members have the option of remaining with the AFP and receiving pension instalments (essentially a living annuity, referred to as "programmed withdrawals") or transferring their accumulated savings to an insurance company to purchase an annuity. There is no regulation around the type of annuity that can be purchased and members can select a living or life annuity, or a hybrid of the two (with the option to convert from a living to life annuity at a later stage, or a combination of a life annuity with a living annuity from retirement).

In 2004 the Chilean Electronic Market for Annuities (SCOMP) was created. Retirees (at retirement and/or at a later date) must access this system to receive life annuity quotes from participating insurers. Quotes are based on member information provided directly from the respective AFP to the insurers and is limited to member age, sex, accumulated pension savings and dependants. Importantly, insurers are not able to observe the quotes offered by other insurers.[17] The individual is also provided with a comparison of the life annuity quotes to a programmed withdrawal option. Individuals may access the system more than once after they retire and may choose not to select an annuity but continue to accumulate savings. Withdrawal of a lump sum is not permitted.

Importantly, commissions received by advisors on living annuities are capped at a lower rate (1.2%) than life annuities (2.0%) (Otero et al., 2019).

17 In contrast to the "Masthead" system in SA in which insurers' retail life annuity quotes are published and visible to the general public as well as to competitors.

Insurers may choose not to provide a quote to a specific individual – this means that retirees may not receive the same opportunities when selecting a life annuity. This has been a criticism of the SCOMP system.

There has been significant take-up of life annuities relative to living annuities in Chile. Otero et al. (2019) show that over the period 2004 to 2017, 78.7% of 250,000 retirees selected a life annuity over a living annuity. This may be ascribed to:

— The higher cap on life annuity commission;
— Level of interest rates. Otero et al. (2019) show that the relative take-up of life annuities has varied over time and is influenced by significant changes in the prevailing level of interest rates – higher interest rates result in lower life annuity purchase prices which in turn result in higher take-up of life annuities;
— Life annuities are commonly inflation-linked; and
— Otero et al. (2019) states that there is evidence that the introduction of SCOMP increased competition which reduced prices.

Despite its success in increasing coverage, preservation and annuitisation, low resulting levels of pensions have led to increasing criticism of Chile's privatised system over recent years. According to the IMF (Pienknagura & Evans, 2021), replacement rates are low by international standards as the system's parameters did not adapt over time to changing demographic trends and global returns, while informality persists in the labour market.

The IMF further suggests that increasing contribution rates, the retirement age and the contribution density would strengthen the system.

Given growing pressure to re-examine the system, the President of Chile re-opened talks on retirement reform in early 2020. Little progress has been made to date. Some access to these mandatory funds has been permitted following COVID.

11.1.2 AUSTRALIA

Retirement benefits in Australia are provided through a combination of statutory pension benefits and contributory superannuation plans – these are private DC pension arrangements. Employers are required to contribute to a superannuation plan (subject to the regulatory "Superannuation Guarantee (SG)" minimum contribution) on behalf of employees. Contributions rarely exceed the minimum required.

Employees are entitled to select their superannuation plan (generally industry funds, publicly available master trusts or self-managed superannuation plans). Stand-alone company superannuation plans have become less common. Employees' superannuation accounts are "stapled" to individuals, so that one account may be used over an individual's lifetime even if they change jobs. The account may be moved to a different superannuation plan at the request of the employee at any time, depending on the rules of the plan. There are strict regulatory requirements around investment performance of funds and performance disclosure to members. (For instance, funds that experience

consistent underperformance over a specified time period must be closed to new entrants until performance improves.)

Annuitisation is not compulsory. Lump sum benefit payments are dominant and life annuitisation rates are low (estimated at less than 10%). Consequently, the annuities market is small relative to the size of the retirement savings market. For this reason, there are useful learnings from the Australian market in terms of the accumulation phase (improving contribution and preservation rates) but not in terms of the decumulation phase (annuitisation at retirement).

Annuity pricing is not regulated and according to a leading annuity provider, annuity pricing is based on age and sex only (income is not typically used as a rating factor).

11.1.3 CANADA

Canada's retirement benefit regulations differ across industries and jurisdictions. Pension benefits are predominantly covered by a nationalised (DB-based) pension system with inflationary pension increases. Most employers offer supplemental DC or DB plans.

Supplemental retirement benefits are either held within locked-in retirement accounts (LIRA) or non-locked in fund benefits. Retirement benefits held within LIRAs are payable as a life or living ("Life Income") annuity. LIRAs are preservation accounts funded by pension benefits paid out on withdrawal from a pension fund. Depending on the plan, unlocking options may be available to members under certain conditions (for example high medical or disability-related costs).

Non locked-in funds' benefits may be withdrawn as a lump sum at any time.

Life annuity selection has not been popular. Though this is not regulated, life annuities are typically priced using age, sex, pension amount and postal code as rating factors. Interestingly, postal code is used as a rating factor to prevent individuals from splitting annuities into smaller purchase amounts to take advantage of favourable pricing offered to lower income individuals. For pension amounts above a certain size, medical underwriting is required.

In 2019 Canada proposed tax changes to permit pension funds to set up a separate annuities fund to offer Variable Payment Life Annuities (VPLA) – these are similar to living annuities in South Africa.

11.1.4 DENMARK

Most employees are required to contribute to a private pension scheme. Schemes may have different rules around benefit payments, with many requiring the purchase of a life annuity. Members make a decision around annuitisation during the accumulation phase (a few years prior to retirement). This is speculated to be one reason for Denmark experiencing a relatively high take-up of life annuities.

Insurers do not explicitly price life annuities on income or earnings, however their pricing basis is based on their own mortality experience. In other words, pricing reflects

the mortality experience (linked to income) of the group insured. Denmark represents a small and developed country with a relatively high financial literacy rate – another possible reason behind the high selection of life annuities by retirees.

11.1.5 FRANCE

Despite a reasonable state pension benefit (providing a net replacement ratio of 50% of average covered earnings), France also has mandated employer and employee contributions to the earnings-related plan, AGIRC-ARRCO. The plan is governed by national collective agreement between unions and employer representatives. Benefits are payable as life annuities. Supplemental occupational DB and DC plans are rare, as the benefits from the AGIRC-ARRCO pension system are comprehensive. The most common form of supplemental retirement plans are tax incentivised company savings plans, which can be paid out as an annuity or a lump sum. In addition, employees leaving service upon retirement are generally entitled to a minimum mandatory lump sum indemnity payment from their employer, in accordance with the Labour Code.

Although there has been some growth in the private annuities market, it is not as established as other European markets considered in this analysis.

11.1.6 IRELAND

State pension benefits are flat-rate amounts based on the number of years over which the individual contributed to the Pay-Related Social Insurance system. Benefits are generally low and individual or group retirement plans are fairly common.

At retirement up to 25% of a DC fund may be taken as a tax-free lump sum. The remainder may be taken as a lump sum subject to normal income tax rates, or used to purchase an annuity. Savings may also be transferred to an "Approved Retirement Fund", which is similar to a living annuity.

Annuity providers generally do use income as a rating factor in the pricing of annuities. However, the private annuity market is small and take-up is not high. This has been attributed to a poor understanding of annuity options, lack of flexibility, and a perception of poor value in the annuity market.

11.1.7 ISRAEL

Membership of a pension scheme was mandated in 2008 for all employees. At retirement, savings must be used to purchase a life annuity to meet the minimum monthly pension income. The minimum income is regulated and depends on age, marital status and number of dependants. Surplus funds may be taken as a lump sum or added to the annuity purchase amount.

Additionally, new pension funds benefit from an effective government subsidy in that 30% of assets may be invested in non-tradeable government bonds earning a stated yield.

Individual annuity rates are standardised based on factors approved by the regulator,

but the parameters are currently limited to age and sex. Occupational factors may be considered in the corporate market for annuity pricing (a similar system to South Africa).

There appears to be an intention from the Ministry of Finance to increase the standardisation of insurance products for better pricing transparency and comparability across providers.

11.1.8 NETHERLANDS

In addition to state pension benefits, the vast majority of employees are covered under supplemental occupational plans. Most of these are DB plans and although there has been a recent shift to DC plans the transition has been slower than has been seen in other large retirement markets.

Lump sum payments from DC plans are prohibited and benefits must be used to purchase a life annuity. However, reform is currently underway (expected implementation in 2023) to allow a 10% lump sum payment.

The pricing of annuities is regulated in terms of the discount rate (incorporating a maximum allocation to risky assets). However pricing is not regulated in terms of the factors used in setting mortality assumptions, including the use of income as a factor.

11.1.9 SWITZERLAND

Occupational plans are mandatory and the majority offer a life annuity or a lump sum benefit on retirement. Despite low interest rates and low mortality rates amongst annuitants, mandated schemes offer generous annuity rates which has led to concerns around their long-term sustainability. On the other hand, the favourable pricing has increased the popularity of life annuities relative to other countries.

Annuitisation levels in Switzerland are high and this has been attributed, alongside the perception of good value, to cultural attitudes, specifically financial conservatism and literacy among Swiss workers (Pensions Policy Institute (PPI), 2014).

11.1.10 UNITED KINGDOM (UK)

State pension benefits are relatively low and supplemental plans are necessary. Employers are required to enrol eligible employees into a qualifying occupational or personal pension plan. Company-sponsored supplemental plans are almost universal among mid- to large-sized employers, although there is significant differentiation between plans and industries. A government-run option, the National Employment Savings Trust (NEST), is available to employers who don't offer their own plan.

The UK has one of the oldest and deepest retirement annuity markets in the world[18] but the market is under threat from "Pension Freedoms". This is exacerbated by a perceived lack

18 The retirement market in the UK amounted to 135% of GDP according to the 2021 Global Pension Asset study by WTW.

of value offered by annuities due to rising life expectancy, low interest rates and increasing regulatory and capital requirements for insurers. The regulatory change in 2015 abolishing compulsory annuitisation was consequently welcomed by the public.

Automatic enrolment is intended to address the main shortcomings of the system: lack of access to a retirement plan for low-and middle-income workers, and low retirement savings rates.

11.1.10.1 Pension freedoms

Pension Freedoms legislation, which came into effect in April 2015, replaced compulsory annuitisation with full benefit flexibility. Retirees from DC plans can now take their entire benefit in cash at retirement.

As part of the reform the UK Government provides free and impartial advice to help members approaching retirement to make suitable choices. This service is funded by levies on both the financial services industry and pension plans. Despite this service being available to all savers the annuitisation rate has dropped dramatically since Pension Freedoms was introduced (it is conceivable that the rate would have dropped more precipitously had the advisory service not been offered).

It is speculated that the motivation for this policy change may have been political, and not necessarily to improve the retirement outcomes for members. The counter argument (and reported motivation) is that flexibility of benefits would encourage higher levels of participation and contribution rates in retirement savings. There is no evidence from any other country or retirement savings model that this is a successful strategy to achieve this objective. Furthermore, and more importantly, higher levels of retirement savings do not necessarily translate into better retirement income security if there is no requirement to annuitise at retirement.

An important feature of the UK's system is that the Financial Conduct Authority (FCA) requires insurance providers to ask consumers interested in buying an annuity questions to determine if the individual is potentially eligible for improved income as a result of health or lifestyle factors.

The information must be used to generate a market leading annuity quote, that includes improvements in income achievable in the open market. The provider must explicitly state the gap between the in-house annuity offer and the best available open market rate. This requirement is progressive and highly beneficial to consumers.

11.1.11 UNITED STATES

The purchase of life annuities in the US is negligible (estimated at less than 2% of pensioner income) (Pensions Policy Institute (PPI), 2014). The state pension offers material pension benefits and 401(K) (voluntary DC) schemes offer unrestricted access to retirement savings at retirement age.

11.2 Summary: International experience

Most countries are grappling with the same issues in the provision of private pension benefits. These include: low net replacement ratios of pension savings; low coverage of retirement savings plans, especially in informal sectors; inadequate education and access to information for members to make informed and wise choices before and at retirement; behavioural biases of members during the saving and consumption phases as well as choices around decumulation; low take-up of life annuities leaving retirees at risk of running out of pension savings; a (possibly not misplaced) mistrust of insurers offering pension products; increasing longevity risk (who is responsible for managing this and how can it be managed); and finally the competing interests of financial services providers, regulators and members.

Generally, the countries reviewed have not imposed any regulations around the pricing basis of annuities. Where regulations have been imposed these have been around the form of the benefit payment (life / living annuity / cash lump sum). Income is not typically used as a factor in annuity pricing. Canada is the only country with relevant annuity pricing experience where postal code is used as a supplement to pension amount to apply correct mortality and prevent the risk of individuals splitting their retirement capital into small purchase amounts to take advantage of advantageous pricing. In addition, medical underwriting of high purchase amounts is applied in Canada.

Though no country has managed to solve all the retirement system issues, and few have any helpful experience around private annuity pricing, there are aspects of retirement systems in individual countries that are useful to consider in the design of a private retirement system, which could deliver better value to members and improve retirement outcomes in South Africa. Appealing product design features from some countries, as well as a commentary around their applicability in South Africa are provided below.

In all the countries surveyed, living annuities are synonymous with encashment.

Australia, Israel and Switzerland have compulsory participation and contributions to a private pension system. If these were to be introduced in South Africa, initially the level of mandatory contributions would need to be set very low. Automatic contribution escalation could be introduced to avoid the Chilean experience of poor retirement outcomes. The Australian experience indicates that minimum contributions typically are the only contributions made.

Australia has some useful pre-retirement aspects:

— Strict regulatory requirements for funds to accept new members- if investments are underperforming funds must be closed to new members until performance improves
— Preservation of savings – the proposed "Two pot system" (see Section 2.3) will address preservation
— Portability of retirement benefits between providers and de-linking of fund membership from employer – de-linking fund membership from the employer

could be introduced. This would enhance competition between funds and could mean that "savings follow the member". This aspect could also address the issue of income underwriting at annuitisation stage, as all retirement savings would be in one fund.

The Netherlands and Israel are the only countries surveyed which require compulsory annuitisation through the use of life (not living) annuities. Where in the Netherlands full annuitisation is required, in Israel this is imposed up to a minimum pension amount which is regulated and depends on age, marital status and number of dependants with the remainder being free to annuitise in a living annuity or to add to the life annuity. As annuitisation is compulsory, there is some regulation of annuity pricing. In Netherlands the discount rate used in annuity pricing is regulated. In Israel the annuity rates are standardised and must be approved by the regulator. These depend on age, gender, marital status and number of dependants. Since South Africa now has compulsory annuitisation, consideration should be given to some regulation of annuity choice or pricing bases.

Canada uses postal code in conjunction with purchase amount to effectively rate by income to ensure that annuities are not split to make use of preferential pricing.

Denmark and Switzerland are the only countries with voluntary annuitisation with a high take-up of life annuities. In Switzerland this is predominantly due to generous pricing. In Denmark, this is due to product design requiring life annuitisation at retirement for many plans and also due to financial literacy and engagement with individuals around annuity choices a few years before retirement.

Chile has some interesting design features:

— Strict governance fund regulation in the accumulation phase such as shutting down of funds which underperform to new members until performance recovers
— Electronic market for life annuity purchases at retirement – this would need to be limited to guaranteed annuities (not with-profits) unless a way to standardise the disclosures around with-profits annuities was easily found. Introducing such a system would reduce or even eliminate the need for (and cost of) a financial advisor
— Regulatory capping of commissions on living annuities – if life annuity purchases are not compulsory, regulatory capping of commissions paid on living annuities to at least equalise these to commissions received on life annuities to remove the financial incentive to sell living annuities could be considered.

When designing a retirement system, it is important to not impose the system from one country to another, but to take the individual country characteristics into account. While many of the lessons above can be implemented in South Africa to some extent, we have to consider our own circumstances in determining how appropriate and effective such measures would be. As such, although pricing of annuities is not generally regulated and income is not generally used as a risk factor in annuity pricing in most of the countries

surveyed, one must be aware of the differences between South Africa and the developed world. The two main ones are:

— The provision of a reasonable state pension benefit in most developed countries which is not the case in South Africa. This means that there is a higher onus on the South African private pension system to work efficiently and fairly, as effectively it is looking to provide a social pension system run privately (if the two pot system is introduced).
— South Africa has the highest level of inequality (measured by the GINI coefficient) in the world.[19] This means that income disparity cannot be ignored and there may be a stronger case for using income as a rating factor than is the case in most other countries.

12. ALTERNATIVES TO INSURER-PROVIDED ANNUITIES AS A WAY TO MANAGE INCOME SECURITY DURING RETIREMENT

The poor penetration of life annuities has resulted in a renewed focus by many countries on alternatives to the traditional life annuity provided by a life insurer, and alternative designs for insuring against longevity risk. We discuss some of these alternatives below. This is not an exhaustive list; it is possible that there are other innovations in this area that we did not encounter in our research. What is important is that this field is evolving as countries tackle the "retirement problem". For a full analysis of the available approaches further research in this area will be necessary.

Longevity risk can be categorised into specific longevity risk (which can be hedged by pooling lives) and systemic longevity risk, which is the risk of longevity increasing across the population over time (this is also known as mortality improvements). Systemic longevity risk cannot be hedged by insurers and increases the risk of insolvency over the long term as in-force life and annuity contracts cannot be re-priced during their term. The uncertainty of systemic longevity risk is also likely to increase the cost of annuitisation over time as insurers attempt to put a price on this immeasurable risk.

While systemic longevity risk has risen over the years, recent experience indicates that the level of mortality improvements is not as high as previously thought (and improvements in mortality rates are slowing) and in fact not present in some populations at all (Section 7). Nevertheless, given medical improvements and general improvements in the quality and "level" of lifestyle experienced globally, this remains an unknown and unpredictable risk.

12.1 Tontines: an alternative to the insurer annuity

Tontines were a popular form of retirement annuity model in the 1700s and 1800s. These structures were initially set up by governments as a form of government funding but were later established informally by smaller groups or institutions.

19 https://data.worldbank.org/indicator/SI.POV.GINI

Investors entered a tontine by making a lump sum payment into a pool alongside other investors in the tontine. In return they received regular income payments. On an investor's death, their remaining funds were redistributed to surviving investors in the pool, whose income payments then increased (referred to in modern structures as "mortality" or "survivorship" credits). Investors benefited from high levels of mortality in the pool. Tontines were "closed out" when one last surviving investor was left with the entire pool of funds.

Over time the popularity of tontines resulted in dire mismanagement and misappropriation of funds by some providers. A major investigation into the misuse of these vehicles by US insurers led to them being banned, first by New York state in 1906 and followed soon after by other countries.

The basic principles of tontines are being revived into modern models of annuity structures to find innovative ways of pooling longevity risk. Terminology and rules differ but the common principles are to pool longevity risk without providing guarantees of future payments. The general principle is that future payments will vary based on actual mortality experience and investment returns. Since the full mortality and investment risk is borne by the pool of investors, there is no need for a guarantor.

This structure bears some resemblance to the with-profits annuity model in South Africa, where the pensioner pool bears all the mortality and investment risk, which affects future pension increases.

In traditional annuity markets, insurers load premiums for individual as well as systemic longevity risk given that they are not able to re-price in-force annuities to take into account changes in longevity experience over time. In contrast, a tontine-like structure would have actual mortality experience continuously reflected in the pension amounts paid to annuitants.

Traditional annuity pricing also reflects solvency or capital charges and insurer profit loadings (in addition to the systemic longevity risk loading discussed above) which can be excluded from the pricing of an annuity in a tontine-like structure (provider allowing). This means that over the long term, tontine-like structures are expected to provide a higher income than traditional life annuities.

Milevsky et al. (2018) offers a useful discussion on the difference between tontines and annuities in terms of principles and value, and provides evidence that over time tontines offer higher income than annuities.

However tontines and similar structures are not without their risks and challenges:

— Pension increases will reflect the actual underlying experience. The individual in the pool is therefore exposed to continuous income uncertainty and fluctuations as the pension payments adjust to take into account actual experience. The individual is also exposed to a higher risk of income reduction if longevity increases. (It can be argued however that without Government support, these risks will also ultimately over time be borne by individuals in the current insurer provided annuity system.)

— There is a risk that the pricing model consistently underestimates longevity or overestimates investment risk. This will result in persistent and unexpected decreases in income (or even negative real increases) over time, which will likely result in the failure of the structure as a viable system.
— A further risk (which it is hoped is unlikely) is that the new-age tontine-like structures also fall victim to the same fraud and misappropriation of funds as tontines did originally. The level of financial regulation and scrutiny in financial products in modern times should make this risk an unlikely one.
— Administration risks such as the risk that the provider is not informed of a death[20] or that participants illegally enrol dependants to continue receiving payments would be present in these structures which is no different to the current insurer provided annuity system.

It may be possible to design a hybrid structure which includes an overlay of insurance of some form. For instance, extreme longevity experience may be insured against even in a tontine-like structure. Insurance could also be used to partially guarantee payments, whereby an insurer makes up the difference between actual and expected income. Insurance could also be used to smooth income payments over time to reduce fluctuations, without a guarantee. This overlay of insurance may be necessary in the early years, until the pool of individuals is large enough for efficient risk sharing. While the presence of insurance in any form will smooth the pension payments and reduce the risk and pension fluctuations, insurance will come at a cost and may add an undesirable layer of complexity to the structure. An alternative would be to create a model that smooths the longevity and investment experience without insurance or the need for capital reserving. The structure can be designed with increasing, decreasing or level income streams.

It can be argued that such a tontine-like structure would be best implemented outside of the traditional insurance market. This is because:

— Insurers are unlikely to develop and proactively encourage the use of such a model without a financial incentive to the insurer (the intention in this structure is to avoid the profit loading).
— There appears to be a pervasive mistrust of the large insurers by the public. A structure which is not-for-profit and independent of commercial interests will likely be more trusted by the public.

On the other hand implementing such a structure within or by insurers could have some advantages:

20 For an interesting segue on this topic, there are suggestions that blockchain technology could be used to solve this https://news.bloomberglaw.com/daily-labor-report/tontines-meet-blockchain-something-old-could-be-new-again

— Avoids the usual barriers to entry such as distribution channels, infrastructure and not having an established market presence.
— Insurers hold the expertise in the pricing of annuity products and the associated risks.

A comprehensive discussion on the different types and possible pricing models of tontine-like pooled annuity structures can be found in Bravo (2021). A handful of countries has implemented a tontine-like structure in some form or another. Examples include participating life annuities in Germany and Denmark, variable DC pensions in the Netherlands, group self-annuitisation in Australia, and variable payment life annuities in Canada. Anecdotally, these structures have not been popular with retirees. This is not surprising given the option to rather encash benefits in these countries at retirement.

12.2 Longevity risk management tools

12.2.1 LONGEVITY BONDS

Longevity bonds are bond vehicles that pay a coupon linked to survivorship of a cohort. The coupon rate increases if the mortality experience of the cohort is lower than expected and decreases if mortality is higher than expected. The cohort is predefined and typically based on national population statistics. This introduces basis risk relative to the specific pool of individuals against which longevity insurance is sought. Basis risk may be reduced by issuing longevity bonds based on more specific cohorts (for example differentiated by gender or socioeconomic factors). The downside of this is that the more categories of bonds that are offered, and the more specific the cohort, the lower the trading and pricing efficiency will be.

Longevity bonds are typically issued by governments which have an explicit interest in providing a well-functioning annuity market to reduce reliance on the state pension and increase tax revenue. In addition, government is best placed to issue long-term funding. The counter view is that governments are already substantially exposed to longevity risk, through state pension grants, the public health care system and the risk of ageing populations (or a decreasing working or tax-paying population).

Longevity bonds could also be issued by the private sector but at the cost of introducing counterparty risk. Issuers of longevity bonds in the private market can potentially offset (or reinsure) the longevity risk through "mortality bonds", which are bonds that offer a medium term payment covering the risk of an extreme event with mortality implications.

Blake et al. (2010) discuss the benefits that could flow from a transparent and liquid capital market in longevity risk. The authors argue that the government could play an important role in helping this market grow (noting that the papers are specific to the UK market), if it assists the industry in hedging against systemic longevity risk.

An alternative form may be higher age longevity bonds which cover longevity risk at high ages, for example from age 85.

As an alternative to issuing longevity bonds, government could guarantee the life annuity books of insurers. This may be a viable option for the South African annuities market and may provide some assurance to members that their future income is not subject to the long term solvency risk of insurers. However this may be a difficult option for the government given the State's current level of state guarantees and indebtedness.

Longevity bonds or the guarantees on life annuity books were not mentioned by insurers as a potential solution to the longevity pricing problem.

12.2.2 LONGEVITY SWAPS

A longevity swap is a series of periodic fixed premium payments to a swap counterparty, in return for payments based on the difference between actual and expected benefit payments (similar to a liability-driven investment strategy based on interest rates or inflation).

The advantage of longevity swaps over bonds is that basis risk is eliminated. Longevity swaps, like other swaps in the current market, would be bespoke over-the-counter arrangements with large insurers, reinsurers or banks. The disadvantage is that this introduces counterparty risk (the risk that the issuer defaults on their payment obligations under the transaction). Counterparty risk may be reduced through the use of collateral, but the challenge is that real time mortality rates are not available and collateral requirements may be too costly. The cost may be worthwhile to insurers however if mortality swaps are able to significantly reduce insurers' capital requirements.

The longevity swap market has grown substantially in the UK and Europe since the first large transactions were agreed around 2010–2012.[21] There is no active market for longevity swaps in South Africa. Anecdotally, insurers have explored longevity swaps with reinsurers in recent years, but these were not found to be commercially viable due to high margins and unfavourable longevity assumptions proposed by the reinsurers.

12.2.3 DEFERRED ANNUITIES

Deferred annuities are products where in return for an initial capital lump sum you receive an agreed annuity payment stream which starts at some future date. Deferred annuities offer some protection against longevity.

In order to protect against longevity risk, one could use a portion of the retirement capital to purchase a living annuity or take cash (this would fund immediate consumption needs as well as providing for the bequeath motive) and the remainder could be used to purchase a deferred annuity beginning payment at some future date (this would provide longevity protection). Initiation of annuity payments may be linked to either age or to the value of the separately managed withdrawal portfolio.

21 In March 2021 the AXA UK Group Pension Scheme agreed a GBP 3 billion longevity swap with Hannover Re. The swap was a market first in that 95% of the 16,000 members covered were non-pensioners.

Deferred annuities do not, however, offer a solution to the issues of complexity, unfair pricing and high fees associated with life annuity products. This is a useful supplement to retirement products but is not a solution to the annuity problem.

A further problem with purchasing a deferred annuity in terms of pricing is that the relative pricing at older ages is more expensive as most mortality credits are gained in the first few years post retirement.

Deferred annuities are not offered in South Africa as they are disallowed by the Long-Term Insurance Act.

12.2.4 INSURER COMMENTS

When asked about how government could improve or ease the burden of longevity on insurers, no solutions were identified. Reinsurance of longevity is one option but expensive. Government guaranteed swap arrangements or mortality bonds were not seen as viable in the South African market.

PART V – CONCLUSION AND DISCUSSION

13. CONCLUSION

South Africa finds itself moving from a world of voluntary participation, preservation and annuitisation to a world of compulsory annuitisation, proposed compulsory preservation and potential future compulsory participation. Though annuitisation of two-thirds of benefits arising from contributions or service after 1 March 2021 is compulsory in South Africa, annuitisation can take place using a life, a living annuity or a combination of the two.

While fairness is always important, it is critical in a system where individuals cannot opt out of the system. It is therefore important to ensure that the annuity market available for retirees is fair in structure, appropriate for the purpose which it serves and fairly priced, especially for the low-income workers.

The high take-up of living annuities is concerning. It is a common view (and in line with National Treasury's view) that a life annuity is more appropriate than a living annuity for low-income individuals as it guarantees a pension for life, requires little or no financial advice or decision-making and transfers most risk to the insurer (Section 3.6). In fact, for the very same reasons, a life annuity is a more appropriate product to provide income security to all individuals regardless of income. Although it is an economically supported view that individuals should rationally choose to annuitise, actual experience in South Africa and internationally suggests that living annuities or encashment options are far more popular than life annuities. Possible reasons include the bequest motive and advisor commission structure (Section 3.5). This makes it even more important that life annuities be priced fairly and offer value.

13.1 Conclusion relating to fairness of pricing of life annuities for low-income individuals

It is widely accepted, and evidenced in mortality studies, that income has a significant impact on mortality. The estimated impact on annuity rates, arising from mortality differences across income bands, is as much as 20%–30% (Section 7.1.3.2). It is therefore reasonable to expect that an annuity pricing basis should take income into account. This research shows that the institutional market (bulk annuity purchases made by retirement funds or employers) uses income as a rating factor in the pricing of annuities, whereas the retail market (where individuals purchase annuities) does not, even within the same insurer. High-income individuals in the institutional market pay around 17%–28% more for annuities than low-income individuals (Section 9.2.2.1) whereas in the retail market the annuity rate is the same. The annuity market is therefore inconsistent in its pricing and, based on the definition adopted, fairness of pricing could be improved (Section 10).

We note that the lack of income rating in the retail market does not necessarily result in prejudicial pricing for the lower income population if retail pricing already reflects the mortality of a lower income population. This may be the case based on market data and pricing provided. Thus in the retail market, pricing unfairness stems from higher income individuals being able to access the same annuity rates as their lower income counterparts rather than from lower income individuals being charged too much. This should be corrected. The pricing exercise undertaken in this research should be repeated to confirm these results. The reasons provided by insurers for not applying income ratings are not insurmountable and we have no doubt that these can be overcome (Section 10.1).

There is little evidence of competitive pricing in the retail market (since insurers claim to target different income markets this should result in different experience which is not reflected in annuity pricing) and more incentive and willingness to offer competitive rates in the institutional market. As retail annuity rates are publicly available, it is in our view unlikely that insurers will voluntarily begin to apply income ratings in retail annuities as this will expose them to too much risk. The requirement to take income into account in retail pricing, in our view, needs to be legislated.

The discrepancy in pricing between the retail and institutional markets is notable. Low-income individuals are paying 19%–37% more in the retail market than their cost in the institutional market (Section 9.2.2.2). Anti-selection accounts for an estimated 10%–14% of the difference (Section 7.1.3.1). The remaining difference is significant and should be addressed. Though there may be a technical basis for this, it is unfair that a low-income individual will be charged some 9%–23% more in the retail market than they would in the institutional market because of expenses and margins.

In addition, we note that as long as living annuities are permitted for annuitisation purposes, anti-selection will result in higher life annuity prices.

Internationally, there is no evidence of a voluntary retirement system with compulsory annuitisation in the countries surveyed. Private annuity markets are small and usually not

compulsory. With the exception of Israel where annuitisation using a life annuity priced on a regulated basis is compulsory, and the Netherlands where the discount rate is regulated, there is no evidence of any annuity pricing regulations.

The research shows that there is scope to improve the fairness of the retail life annuity market (Section 10), but we suggest that any policy changes be made only after re-examination of the context of the entire retirement system.

13.2 Wider considerations – designing a system fit for purpose

13.2.1 THE RETIREMENT SYSTEM AS A SOCIAL GOOD

Before introducing any policy interventions, it is critical to consider what the purpose and intention of the retirement system is in general and the annuity market in particular.

According to ChatGPT, "a social good is a service, product or good which provides benefits not only to the individual using it, but also to society as a whole; the benefits spill over beyond the immediate consumer to other individuals in the broader community". A well-functioning retirement system which provides good outcomes can be considered a social good.

The concept of a social good is closely linked to the concept of market failures where the private market fails to efficiently allocate resources as it does not take into account the full social benefit. As a result, governments often intervene in the market to ensure that it functions to the benefit of broader society. This explains why national retirement and healthcare systems are prevalent.

13.2.2 THE RETIREMENT SYSTEM IN SOUTH AFRICA

The purpose of the retirement system is to provide income security to individuals in retirement.

In South Africa, this was reasonably achieved for those in formal employment under the defined benefit regime, where pension funds managed decisions and risk on behalf of members. Over the last 20–30 years as benefits have moved to a defined contribution regime and decisions have been placed into the hands of individual members, we have seen poor retirement outcomes with low levels of savings, low levels of preservation and low levels of annuitisation (with insignificant levels of annuitisation through life annuities).

Government has intervened in this market over time to harmonise various retirement vehicles to enhance portability of benefits, introduce compulsory annuitisation and now propose compulsory preservation. There is mention made of mandatory participation and contributions in future. Default regulations have been implemented for members who are unwilling or unable to make appropriate choices. Many positive regulatory interventions have been put in place to ensure that an individual's savings are well managed during their working life to give them the best chance of accumulating a meaningful retirement benefit. Once they reach the point of retirement however, the annuitisation decision is entirely unregulated and has resulted so far in undesirable outcomes where a vast majority

of retirement benefits are taken in cash or used to purchase living annuities. Regulation at annuitisation is required to ensure that accumulated retirement savings are converted into income security at retirement to ensure that the system delivers according to its purpose.

13.2.3 IDEAS FOR POLICY INTERVENTION REGARDING ANNUITISATION

We suggest that the following policy interventions could be considered:

13.2.3.1 Introduce a requirement that a basic pension income be purchased using a price- regulated life annuity

Living annuities are not appropriate as the primary form of annuitisation of retirement benefits for the majority of the population and their use should be limited to only providing top-up flexibility once a minimum income payable for life (and preferably increasing with inflation) has been secured.

— We suggest that there be a requirement to annuitise some minimum amount using a life annuity from an approved insurer or retirement fund through a "regulated compulsory annuity". This minimum amount should reflect a reasonable level of income security (possibly measured by some multiple of the State Old Age pension).

— The regulated compulsory annuity used for this purpose should provide some or full inflation protection and provision for a spouse pension where appropriate, and must be a low cost, simple, standardised product which requires no choice or advice. Some death benefit through a guaranteed term should be allowed for on early death to address the bequeath motive to some extent.

  Though a with-profits annuity is in theory a good option for this purpose as it allows for the pooling of risk without the cost of guarantees, its very design makes it difficult to understand (some level of future pension increase is already allowed for in the pricing, the impact of the post-retirement rate used on pricing, the fact that the pool bears mortality risk which will impact future pension increases). In addition, since future pension increases depend on investment performance, selection of provider requires evaluation of investment manager skill. These factors make it difficult to standardise the with-profits annuity. This makes the with-profits annuity require advice which makes it an inappropriate product, in our view, for the role of the regulated compulsory annuity.

  A CPI-linked annuity is adequate for this purpose as it is entirely standardised and offers inflation protection. A fixed escalation annuity (offering 4%–6% per annum guaranteed increases) offers a more affordable alternative with reasonable inflation protection (based on current inflation estimates).

— We note that the provider of this regulated compulsory annuity in an ideal world would be the State where these products could be offered on a non-profit basis, and experience easily pooled across a diverse and large population. We also note that State-managed entities are currently experiencing ineffective management and

as a result low levels of public trust. Until this is rectified, the State should in our view not be the annuity provider. Due to the importance of and quantum of these benefits, we rather suggest splitting the administration and management of these compulsory annuities across multiple insurers to minimise risk of total system failure due to potential failure of one provider.

We note that such a "privatised-part-national" system exists to some extent already in South Africa in the medical scheme environment where private medical schemes are required to provide a set of Prescribed Minimum Benefits.

— We suggest that the annuity rates used for the pricing of this annuity should be regulated and identical across the insurers. Thus a retiree will get the same pension and same future increases regardless of insurer (as would happen in a national retirement system). In this way insurers will compete only on administration and reputation and not through cherry picking of the annuitant pool. Profits would still be possible through enhanced administrative efficiencies and superior investment returns. Insurers should be involved in setting of and agree to the regulated basis which should be updated on a regular basis.

It is important that the annuity pricing appropriately reflects the risk of longevity and appropriate mortality experience while taking into account deliberate cross subsidies from the less vulnerable to the most vulnerable. In the South African context this would be mortality rating by age. Rating by income would prevent a cross subsidy from the poor to the rich. Not rating by gender would create a cross subsidy from males to females.

We note that this kind of regulatory intervention in the pricing of a social good already exists in South Africa in the medical scheme environment whereby medical schemes are not permitted to take individual risk factors into account in setting premium rates. In the medical scheme environment, no risk rating ensures a cross subsidy from the healthy to the sick. In the retirement environment, the pricing should avoid cross subsidies from the poor to the rich.

— Mortality experience should be pooled across the entire annuitant pool across all the insurers to determine the mortality assumption to be used in pricing. As this would be a compulsory product, no anti-selection would exist, no commissions would be charged, no advice would be necessary and initial costs should be zero. Based on the data used in this research, this could possibly reduce the cost of the retail annuity rate for a CPI-linked pension by up to 37% for low-income workers compared to the current pricing.

— It is critical that, since a standard annuity rate is imposed on insurers, a risk compensation model be applied to compensates insurers for poor mortality experience, so that insurers who happen to attract longer living individuals are compensated for this (since they do not have the freedom to set the price based on their own experience).

This suggestion is similar to the Risk Equalisation Fund which was intended to be introduced in medical schemes with the introduction of Prescribed Minimum Benefits and was not in fact introduced. This will be a crucial element of the retirement system and without it insurers will simply not be willing to take on this risk.

— Insurers or retirement funds must be approved and monitored on a regular basis to be permitted to provide this compulsory life annuity in order to ensure financial sustainability.
— With the exception of a small profit loading which may be allowed for in the pricing, this system should essentially function like receiving a pension from the State (as happens in most European countries) except that the annuity provision will be spread between private pension providers.
— The standardisation of annuity product and pricing will enable the purchase of these compulsory annuities to be done electronically and without the need for any financial advice, which will lower costs.
— The remainder of the retirement benefit (once the minimum pension has been secured through the regulated compulsory annuity) could be used either to top-up the regulated compulsory annuity (insurers could offer additional annuity products with competitive elements for this portion) or be used to purchase any other annuity including a living annuity.
— The above system could easily be scaled up to include all future annuitant groups (other than those formally employed) and could be see as offering the annuity solution for the proposed National Social Security Fund should this become a reality.

13.2.3.2 Less extensive changes to improve the system

There are some less complex changes which could be implemented to improve the current annuity system. These however, in our view, offer significantly weaker benefits and do not address the primary problem of living annuities being inappropriate products for achieving retirement income security nor do they see retirement income security as a social good.

— Retail living annuities could be subject to the same rules and regulations as in-fund living annuities.
— Financial advisors could be adequately trained on life annuities and be required to present life annuity options to retiring individuals together with a quantification of how long the living annuity is expected to provide an inflation-increasing income under the proposed drawdown rate, and the expected life expectancy of the individual.
— If living annuities are going to continue to be permitted for annuitisation purposes from the first Rand, we suggest that up to some Rand limit of pension, these be standardised to some extent in line with the requirements of the Default Regulations

(regulated maximum drawdowns, restriction on the number of investment portfolios, monitoring of sustainability of drawdowns) across all providers. The intention is to equate an in-fund default living annuity with a voluntary purchase of a living annuity from a provider in the retail market. This should make living annuities more standardised and lower the need for and therefore cost of advice.

Once the minimum income security has been met, the remainder of the retirement savings could be used to purchase a more flexible living annuity. We think that this is an inferior solution to that proposed in 13.2.3.1, but would at least somewhat improve outcomes for members.

— Commissions should be changed to remove the incentive for financial advisors to favour living over life annuities so that appropriate advice is provided without conflict. We note that ideally and for proper management of a living annuity, ongoing advice is necessary so when changing the commission structure this must be taken into account. Perhaps introducing a lower rate of initial and ongoing commission for both life and living annuities could be investigated.
— The fact that commission is payable based on a percentage of assets means that low fund credits are largely ignored in the financial advisor space which should be remedied.
— Tax treatment of a living annuity could be made more penal than that of a life annuity especially for the lower income individuals to discourage their use in the groups for which they are more inappropriate.

We note that though all of these interventions will improve outcomes for members and hopefully drive more appropriate product choices, the mere optionality of living annuities will affect the pricing of life annuities through the anti-selection effect, which is undesirable if the consensus is that life annuities are the more appropriate product.

It is our view that requiring the first part of the retirement benefit to be annuitised using a life annuity (with some or full guaranteed inflation protection), where the price of that annuity (determined with reference to age, gender and income) is regulated and identical across insurers, with appropriate mortality risk-sharing compensation arrangements between the insurers, is superior to the less extensive interventions proposed above. This is because it fundamentally addresses the problem of income security in retirement, which is a social good.

13.2.4 IDEAS FOR POLICY INTERVENTION – PRIVATISED NATIONAL PENSION SYSTEM

Policy intervention should only be considered if it brings South Africa's retirement system closer to the desired end state. If compulsory participation, contribution, preservation and annuitisation are all introduced, the South African retirement system begins to look like a national pension system, just one managed by private entities rather than one managed by

the State as is usually the case. If the end goal is to end up with a national pension system, it is important to ensure that the structure of the products and regulations are appropriate and fit for purpose.

The emphasis in a national system (compared to a private voluntary system) must be fairness and protection of the most vulnerable. This may theoretically be best achieved through the introduction of a national defined benefit fund administered and managed by the State (as is the case in many other developed countries). This is certainly the view proposed for South Africa in the retracted Green Paper on Social Security as supported by the International Labour Organisation. There are justifiable concerns around these proposals. We are specifically not going to comment on these proposals and limit our suggestions below to an alternative solution i.e. a national system which could be implemented in the current private defined contribution environment.

A sensible balance between a fully private and a fully nationalised retirement system should be sought. In order to achieve such a privatised-national system, the following proposals could be introduced in the current DC environment in the accumulation phase. This is a critically important topic which deserves substantial industry discussion and engagement. We offer some brief suggestions to start the conversations below:

— **Mandatory participation** Participation in the system should be compulsory for all those employed. Particular vetted funds could be used for this purpose with a possibility to opt out if the employer has an employer sponsored fund for example. In South Africa, including the informally employed and atypical workers such as commission earners in the system will be a challenge, but this is not a reason not to require participation from those who can easily comply at first and then to bring other groups into the system. This is not explored further in this paper but should be investigated and debated further. We suggest that different sectors be tackled one by one to ensure that solutions are appropriate.

— **Mandatory contributions** International experience suggests that the minimum required contribution rate is typically the only contribution which is contributed and that few individuals contribute more than the legislated minimum in countries where such mandatory contributions have been introduced. As such, it is important to set this at a level which will provide a reasonable expected retirement benefit. Some rudimentary modelling shows that a net contribution rate of 15% of salary to the retirement portion which will be preserved over 40 years will provide a replacement ratio of around 70% assuming that investment returns exceed salary inflation by 4% p.a.

  The contribution rate could be set at some desirable level of say 15%–20% (to allow for the encashment of the savings component) for all new entrants into the job market so that they immediately become accustomed to their income being net of these contributions. For existing employees who are either not contributing at all or contributing less than the desired amount, the mandatory contribution

could auto-escalate on an annual basis to reach the desired level to avoid a shock to their disposable income. Individuals should be able to contribute more should they so wish. Tax incentives should continue to promote savings. To accommodate the atypical and informally employed, the retirement funds themselves will have to be flexible enough to allow lumpy contributions and frequent employment changes (this will be assisted by de-linking membership from employment). This is not explored further in this paper but should be investigated and debated further. Again we suggest that different sectors be tackled one by one to ensure that solutions are appropriate.

— **Preservation of benefits with some access to emergency funding** This will be addressed by the "two pot" system when this comes into effect.

— **De-linking of membership from employment** in general should be investigated further and in our view will be critical to inclusion of the atypical workers. This will allow "money to follow member" and could make the market more competitive. Of course some rules should be put in place to prevent a total breakdown of the employer-fund relationship for well-run stand-alone funds. International experience can be drawn from in this respect.

— **Fund comparability** between umbrella funds should be improved so that employers can quickly and correctly compare pension providers. This may require some simplification of available funds.

— **Strict performance, governance and cost disclosure criteria** Investment performance can be monitored and underperformance result in the fund being closed to new members as is done in Australia. Funds which wish to act as vehicles for the mandatory contribution collection should apply and be authorised for this purpose and regularly demonstrate good governance, cost efficiency, investment performance and good outcomes.

— **Default investment strategy and limited choice of alternative member investment choice portfolios** The limiting of choice of portfolios is important to prevent information paralysis and decrease the need for financial advice.

At annuitisation stage, the suggestions made in ¶13.2.3.1 above could be considered.

At any stage when the State is ready, government can set up a competitor to the other insurers on the same basis and terms as are applicable to the other insurers.

14. FURTHER RESEARCH

There are many aspects arising from this research paper that we believe deserve further investigation and research, some of which may be necessary to guide policy:

14.1 There are a high number of low pension life annuities across the insurers that provided data. The reason for the significant number of these small policies should be investigated.

14.2 Specific research that attempts to accurately quantify the effect of anti-selection would be useful before proceeding with policy intervention. If the difference between institutional and retail annuity prices are primarily driven by other factors, policy aimed at reducing costs or regulating the pricing methodology of life annuities may be appropriate in the retail market.

14.3 There are many possible reasons behind the low take-up of life versus living annuities. It would be useful to probe these possible reasons in more detail to gain a more accurate view of what is driving this behaviour.

14.4 It would also be helpful to investigate the experience of living annuities since their inception in terms of drawdown rates and investment options and retirement outcomes which these have provided to members. It would be useful to have data quantifying the proportion of retirees who took out living annuities that ran out of funds.

14.5 Default Regulations were introduced in 2019. Research should be undertaken to investigate what if any effects these have had on behaviour and retirement outcomes.

14.6 Globally, the markets for alternatives to the traditional life annuity and alternative designs for insuring against longevity risk are evolving. There has been very little development of these markets in South Africa. Ongoing work may be needed in this area to monitor global developments and whether there are innovations or approaches that could be appropriate for the South African market.

14.7 Investigating the various statutory or nationalised systems adopted by other countries was outside of the scope of this paper. Given the recent discourse around the implementation of a National Social Security Fund in South Africa, this would be a useful future investigation.

ACKNOWLEDGEMENTS

We would like to thank individuals at Sanlam, Old Mutual, Liberty, Momentum, Metropolitan and Just Retirement for their time in speaking to us and providing pricing and market data. We would also like to thank the Actuarial Society of South Africa for raising this important topic and to the Research Committee of the Actuarial Society of South Africa for their patience with us in finalising this paper. Lastly, we would like to thank Willis Towers Watson for the country specific market data provided and access to in-country expertise.

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APPENDIX A
RETAIL PRICING

A1. Retail annuity rates

Annuity rating factors in the retail market are based on age and gender only, thus there is no annuity rate differentiation by income in the retail market. The percentage difference between the highest and lowest annuity rate is also shown to illustrate the most expensive versus cheapest annuity rate (including and excluding the highest cost provider which appears to be an outlier).

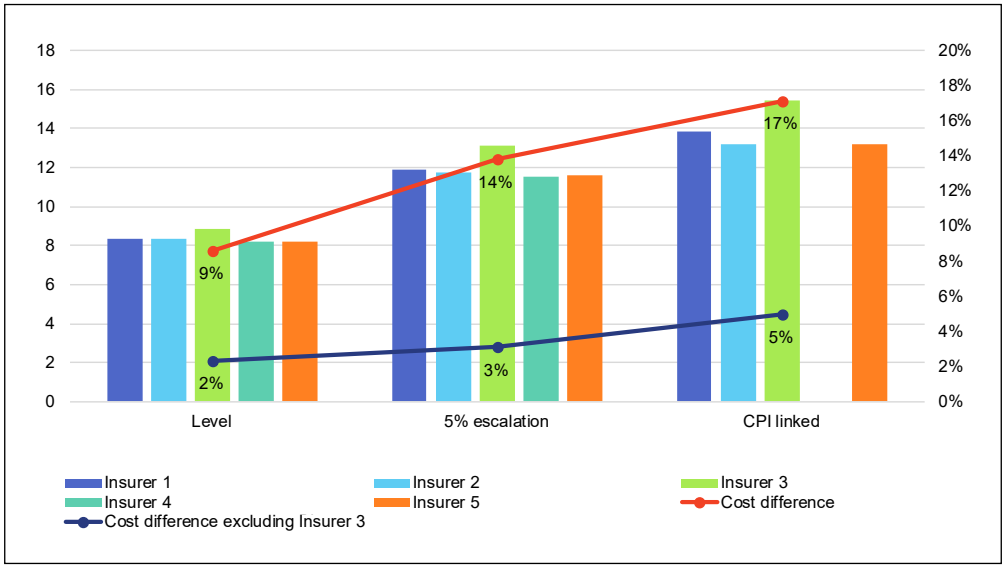

FIGURE 10 Retail annuity rates by type of annuity across the insurers

APPENDIX B
INSTITUTIONAL PRICING BY INSURER

We requested institutional annuity rates from the five insurers included in the study (Old Mutual, Sanlam, Momentum, Metropolitan and Liberty). Annuity rates were obtained for different life annuity types and at different incomes (pension amount or purchase price) for a single life, 65-year-old male, allowing for no commission, no guarantee period and no spouse reversion as at 20 January 2022.

We have compared the institutional annuity rates for different incomes to the annuity rate in the retail market (where no income rating is used) for each insurer in the sections which follow.

The following definitions apply in the figures which follow:

— "Institutional spread (highest income to lowest income)" is the percentage difference between the highest income and the lowest income annuity rate in the institutional market. This reflects the impact of the mortality difference between higher and lower income sectors on annuity pricing.

— "Retail spread (retail vs highest income institutional)" is the percentage difference between the retail annuity rate (which does not take income into account) and the institutional annuity rate charged for the highest income (and longest living) individuals. This shows how much more any person accessing the retail annuity is paying than is charged for the highest income (and longest living) person in the institutional market.

— "Retail relative to lowest income institutional" is the percentage difference between the retail annuity rate (which does not take income into account) and the institutional annuity rate charged for the lowest income (and shortest living) individuals. This shows how much more any person accessing the retail annuity is paying than is charged for the lowest income (and shortest living) person in the institutional market.

Please note that the insurer order in different to that in Section 9.1.

B1. Insurer 1: Institutional vs retail pricing

Insurer 1 provided quotations in terms of starting monthly pension income rather than purchase price (which was provided by the other insurers). The institutional annuity rates for different products and different starting pension amounts are compared to the retail annuity rates in Figure 11.

The following observations can be made from Figure 11 about the pricing for a level annuity by Insurer 1:

— Institutional spread (highest income to lowest income): The institutional annuity rate for an individual in the highest income (with a pension of more than R20,000

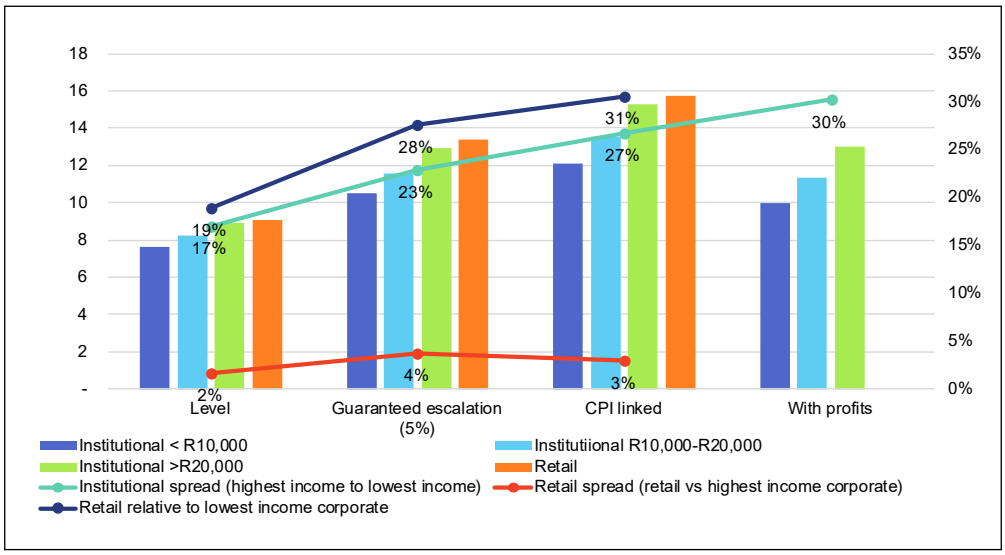

FIGURE 11 Insurer 1: Institutional annuity rates for different types of annuities and levels of monthly starting pension amounts, compared to the insurer's retail annuity rate

per month) was 17% higher than that for an individual in the lowest income (with a pension of less than R10,000 per month). This reflects the lower mortality of the high-income individuals.

— Retail spread (retail vs highest income institutional): The annuity rate in the retail market was 2% higher than the institutional annuity rate for the highest earning (and longest living) individuals in the institutional market.

— Retail spread (retail vs lowest income institutional): Individuals earning less than R10,000 who purchased a pension in the retail market paid 19% more than the cost would have been had they happened to be part of an institutional deal.

Similar conclusions can be drawn for the other product types but with higher spreads.

For Insurer 1, the institutional annuity rate between the highest and lowest income individuals differs by around 17–30% depending on the pension type in the institutional market.

B2. Insurer 2: Institutional vs retail pricing

The institutional annuity rates provided by Insurer 2 for different purchase amounts and different products are compared to the insurer's retail annuity rates in Figure 12.

The following observations can be made from Figure 12 about the pricing for a level annuity by Insurer 2:

— Institutional spread (highest income to lowest income): The institutional annuity rate for an individual in the highest purchase amount category (more than R2.5

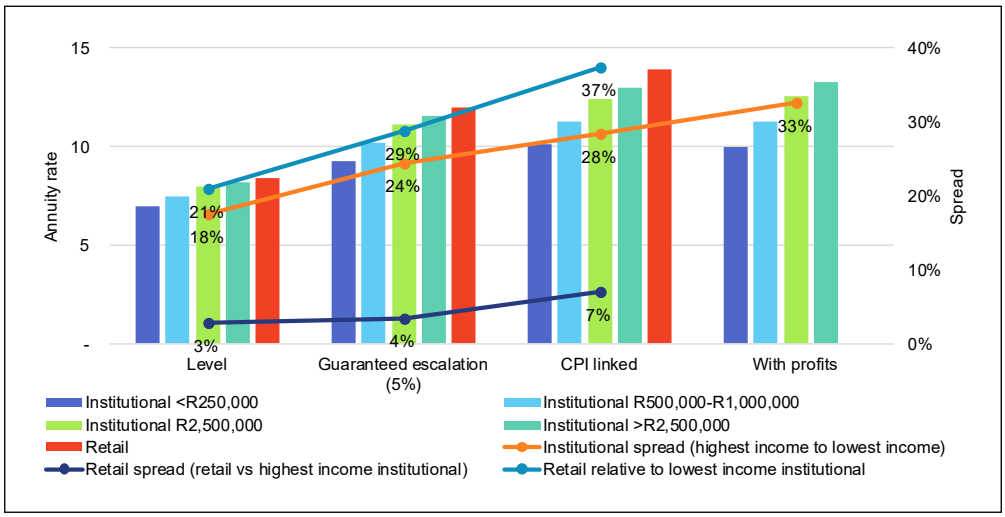

FIGURE 12 Insurer 2: Institutional annuity rates for different types of annuities and levels of purchase amounts, compared to the insurer's retail annuity rate

million) was 18% higher than that for an individual in the lowest purchase amount category (less than R250,000).

— Retail spread (retail vs highest income institutional): The annuity rate in the retail market was 3% higher than the institutional annuity rate for the highest purchase amount category.

— Retail spread (retail vs lowest income institutional): Individuals in the lowest purchase amount category who purchased a pension in the retail market paid 21% more than they would have had they happened to be part of an institutional deal.

Similar conclusions can be drawn for the other product types but with higher spreads. For Insurer 2, the pricing between the highest and lowest annuity purchase amounts differs by around 18%–33%, depending on the pension type, in the institutional market.

B3. Insurer 3: Institutional vs retail pricing

The institutional annuity rates provided by Insurer 3 for different purchase amounts and different products are compared to the insurer's retail annuity rates in Figure 13.

The following observations can be made from Figure 13 about the pricing for a level annuity by Insurer 3:

— Institutional spread (highest income to lowest income): The institutional annuity rate for an individual in the highest purchase amount category (more than R2.5 million) was 6% higher than that for an individual in the lowest purchase amount category (less than R250,000).

— Retail spread (retail vs highest income institutional): The annuity rate in the retail

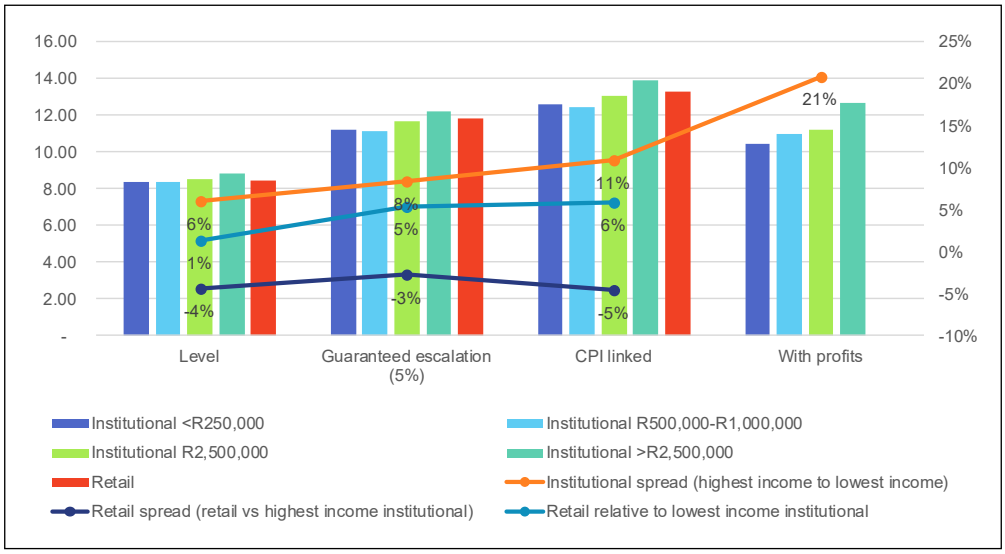

FIGURE 13 Insurer 3: Institutional annuity rates for different types of annuities and levels of purchase amounts, compared to the insurer's retail annuity rate

market was 4% lower than the institutional annuity rate for the highest purchase amount category. This is different to the pattern shown for other insurers and we suspect is caused by the way that expenses have been allowed for rather than a difference in principle.

— Retail spread (retail vs lowest income institutional): Individuals in the lowest purchase amount category who purchased a pension in the retail market paid 1% more than they would have had they happened to be part of an institutional deal.

Similar conclusions can be drawn for the other product types but with higher spreads.

For Insurer 3, the pricing between the highest and lowest purchase amounts differs by around 6% to 21%, depending on the pension type, in the institutional market.

The pricing spreads for Insurer 3 are comparably lower than the other insurers studied. We understand that this is mainly due to the methodology of allocating expenses. As such, these results may not represent a true reflection of a disparity in pricing between the highest and lowest income groups for this insurer.

B4. Insurer 4: Institutional vs retail pricing

Insurer 4 did not provide detailed annuity rates. This insurer only confirmed that the annuity rate for a 5% fixed escalation pension for a low-income (earning less than R7,000 per month) individual would be 8% (for females) or 12% (for males) lower than for high-income (earning more than R30,000 per month) individual.

B5. Insurer 5: Institutional vs retail pricing

The institutional annuity rates provided by Insurer 5 for different purchase amounts and different products are compared to the insurer's retail annuity rates in Figure 14.

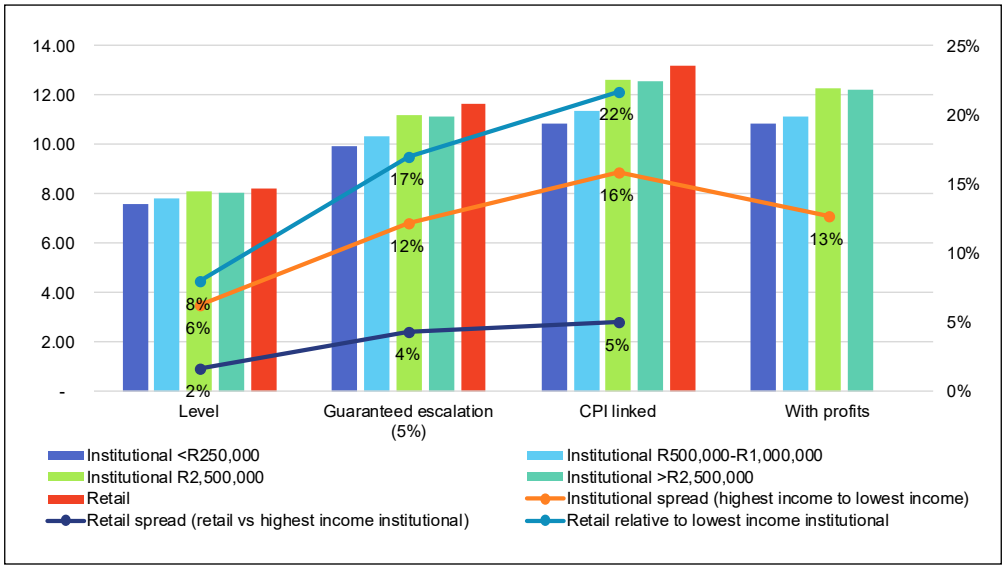

FIGURE 14 Insurer 5: Institutional annuity rates for different types of annuities and levels of purchase amounts, compared to the insurer's retail annuity rate

As can be seen from Figure 14, for Insurer 5, for a level annuity, the following observations can be made:

— Institutional spread (highest income to lowest income): The institutional annuity rate for an individual in the highest purchase amount category (more than R2.5 million) was 6% higher than that for an individual in the lowest purchase amount category (less than R250,000).

— Retail spread (retail vs highest income institutional): The annuity rate in the retail market was 2% higher than the institutional annuity rate for the highest purchase amount category.

— Retail spread (retail vs lowest income institutional): Individuals in the lowest purchase amount category who purchased a pension in the retail market paid 8% more than they would have had they happened to be part of an institutional deal.

Similar conclusions can be drawn for the other product types but with higher spreads.

For Insurer 5, the annuity rate between the highest and lowest purchase amounts differs by around 6% to 16%, depending on the pension type, in the institutional market. As with Insurer 3, this is lower than the difference observed for Insurers 1 and 2.

APPENDIX C
INCOME PRICING INFLECTION POINTS

C1.1 Insurer 2: Institutional annuity rates by starting pension

The institutional annuity rates provided by Insurer 2 for different levels of starting pension are shown in Figure 15. As can be seen from Figure 15, for Insurer 2, the institutional annuity rate differentiation occurs at a monthly pension of R5,000; R15,000 and R25,000.

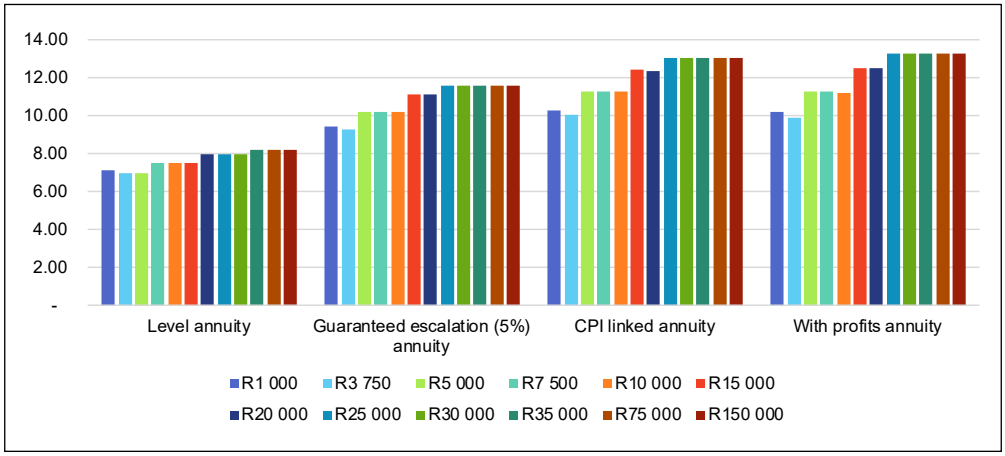

FIGURE 15 Insurer 2: Institutional annuity rates for different types of annuities and levels of monthly starting pension amounts

C1.2 Insurer 2: Institutional annuity rates by purchase amount

The institutional annuity rates provided by Insurer 2 for different purchase amounts are shown in Figure 16.

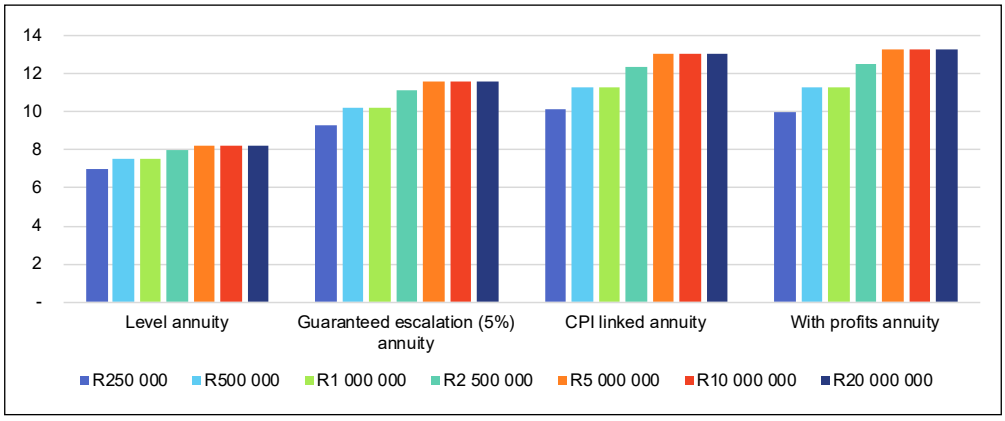

FIGURE 16 Insurer 2: Institutional annuity rates for different types of annuities and levels of purchase amounts

As can be seen from Figure 16, for Insurer 2, the institutional annuity rate differentiation occurs at a purchase price of R250,000; R500,000; R2,500,000 and above R5,000,000.

C2.1 Insurer 3: Institutional annuity rates by starting pension

The institutional annuity rates provided by Insurer 3 for different levels of starting pension are shown in Figure 17.

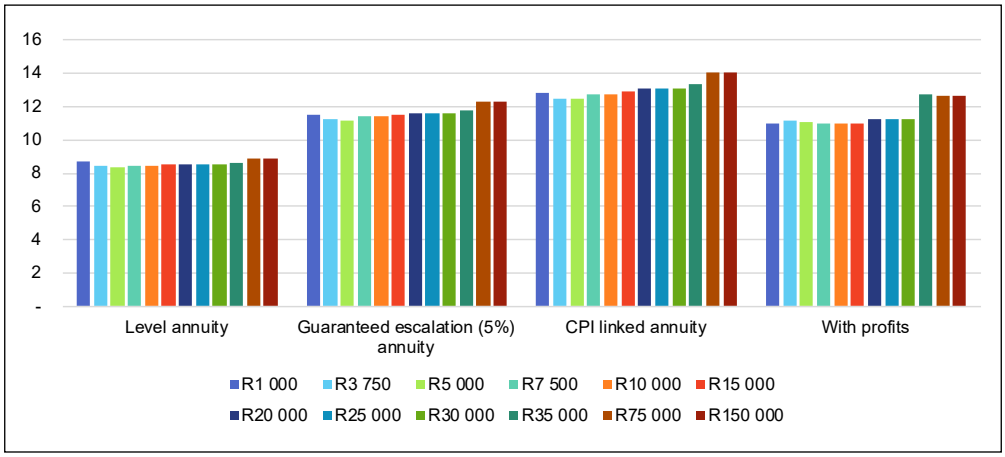

FIGURE 17 Insurer 3: Institutional annuity rates for different types of annuities and levels of purchase amounts

As can be seen from Figure 17, for Insurer 3, the annuity rate differentiation occurs at a monthly pension of R3,750; R7,500; R15,000; R20,000; R35,000 and R75,000 per month. It appears that the table for this insurer is much smoother than the others in terms of graduating the mortality experience.

C2.2 Insurer 3: Institutional annuity rates by purchase amount

The institutional annuity rates provided by Insurer 3 for different purchase amounts are shown in Figure 18.

As can be seen from Figure 18, for Insurer 3, the annuity rate differentiation occurs at a purchase price of R250,000; R500,000; R2,500,000 and above R5,000,000.

C3.1 Insurer 5: Institutional annuity rates by purchase amount

The institutional annuity rates provided by Insurer 5 for different purchase amounts are shown in Figure 19.

As can be seen from Figure 19, for Insurer 5, the annuity rate differentiation occurs at a purchase price of R250,000; R500,000; R1,000,000 and R2,500,000 and above.

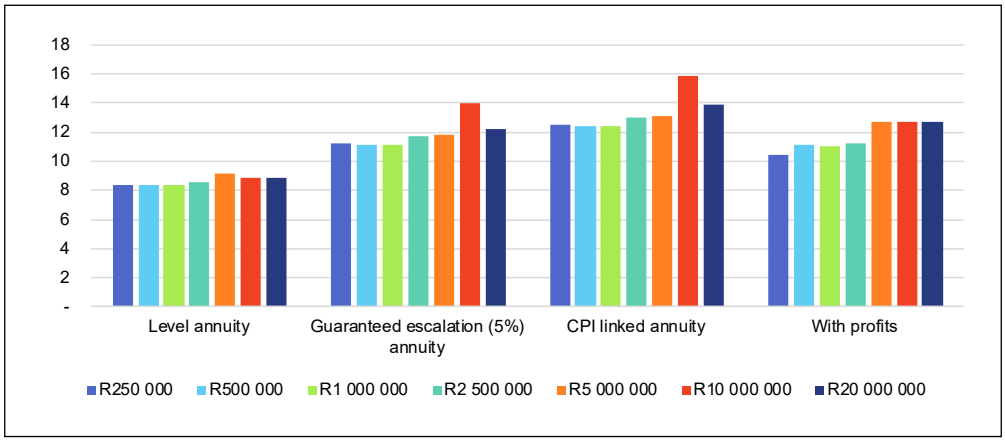

FIGURE 18 Insurer 3: Institutional annuity rates for different types of annuities and levels of purchase amounts

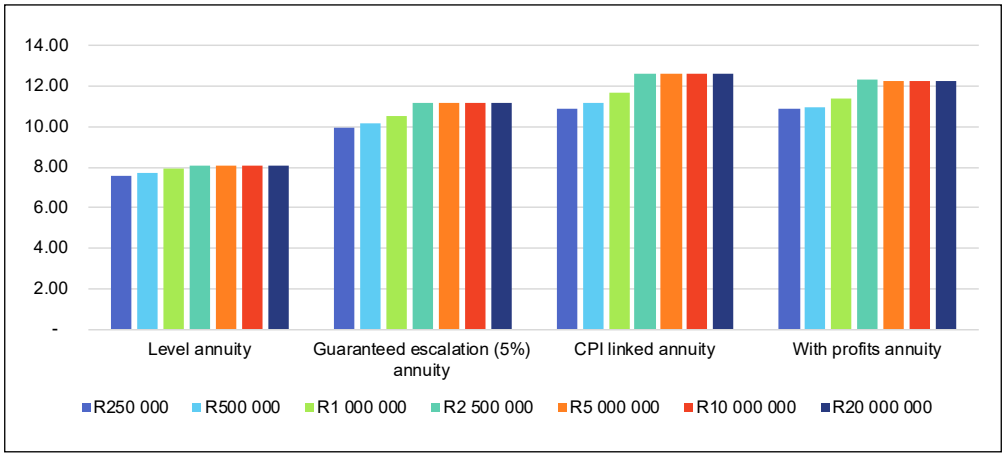

FIGURE 19 Insurer 5: Institutional annuity rates for different types of annuities and levels of purchase amounts

APPENDIX C
COUNTRY SUMMARIES

Below is a table of information reviewed (as provided by Willis Towers Watson) for 58 countries. Highlighted countries were analysed further.

"Pension amount" refers to the total amount of pension savings at retirement.

	Country	Primarily State/ nationalised pension	Primarily private plans or combination	Lump sum benefit	Annuitisation	Combination	Comments	Annuity pricing comments
1	Algeria	x						
2	Argentina	x						
3	Australia		x			x	Small but established private annuity market (lump sum benefits preferred). No legislation governing annuity pricing and pricing based on age and sex only.	
4	Austria	x				x		
5	Bahrain	x		x				
6	Bangladesh		x	x			Undeveloped insurance market and materially inadequate pension market	
7	Belgium		x			x	State benefit is comprehensive and annuitisation of private plans is low	
8	Brazil		x			x	Nationalised pension system with comprehensive state benefit, although most companies offer supplemental corporate plans. Significant reform is underway.	
9	Bulgaria	x				x		
10	Canada		x			x	Complicated regulatory system – applies at industry level or territorial level; nationalised pension system with most employers offering supplemental plans. Assuris NPO protects policyholders from insurer failure.	Age, sex, pension amount, postal code; medical underwriting is required for pension amounts above a specific level
11	Chile		x		x		Compulsory annuitisation and highly regulated pension system	Age, sex, pension amount; commission is capped.
12	China		x	x				
13	Colombia	x			x			
14	Croatia	x			x			
15	Cyprus	x			x			

	Country	Primarily State/ nationalised pension	Primarily private plans or combination	Lump sum benefit	Annuitisation	Combination	Comments	Annuity pricing comments
16	Czechia		x			x	Taxed lump sum, untaxed life annuity; established annuity market but life annuities are not popular.	
17	Denmark		x			x	Many private pension plans require a life annuity and there is an established private market. Annuitisation is popular which is attributed to high levels of financial literacy.	Pricing is based on age, sex and "insured professions" (usually based on insurers' own experience, which tends to reflect a certain demographic). There is no legislation around annuity pricing.
18	Egypt	x				x		
19	Estonia	x			x			
20	Finland		x		x		Most benefits represented by state benefits or private DB plans; DC plans are not offered by all employers	
21	France		x		x		The AGIRC-ARRCO pension system is the primary provider of pension benefits as contributions are mandatory. Benefits are paid as life annuities. The private life annuity market is not large and supplemental private plans are not common.	
22	Germany	x			x			
23	Greece		x			x	Mostly private plans offer lump sum benefit; annuitisation is low.	
24	Hong Kong		x	x				
25	Hungary	x			x			
26	India		x			x	No universal social security system – state benefit is negligible. Voluntary occupational plans vary considerably across sectors, but the bulk of the population is in informal employment with no retirement cover. Some reform is underway to consolidate social security systems.	

	Country	Primarily State/ nationalised pension	Primarily private plans or combination	Lump sum benefit	Annuitisation	Combination	Comments	Annuity pricing comments
27	Indonesia	x				x	A substantial portion of the population is represented by marginal or subsistence employment and is not covered by the retirement system.	
28	Ireland		x		x		Private plans are common given low level of state benefit.	Annuity pricing is based on age, sex and income or health.
29	Israel		x			x	Compulsory basic pension annuitisation, surplus can be lump sum. Established private annuity market.	Pricing is regulated but based on age and sex only. Annuity rates are good as they are partially subsidised by government bonds.
30	Italy	x			x			
31	Japan		x			x	Most employers offer private plans as level of state benefits is low, generally payable as a lump sum.	
32	Luxembourg	x			x			
33	Malaysia	x				x		
34	Mexico	x				x	Compulsory basic pension annuitisation, surplus can be lump sum	
35	Netherlands		x		x		Private plans are common and annuitisation is mandatory. There is an established private annuity market. The shift from DB to DC plans has been slow.	Pricing is generally based on age and sex only.
36	New Zealand		x			x	Contribution to either the nationalised plan or an occupational plan is compulsory; benefits are paid as a lump sum.	
37	Norway		x			x	Pension income must be paid by private plans for a minimum of ten years before a lump sum can be taken. Life annuities are rare and income is generally paid as a living annuity.	
38	Philippines	x				x		
39	Poland		x			x	Private plans are payable as a lump sum or annuity. Take-up of annuities has been low and there is a high level of reliance on the state pension.	

	Country	Primarily State/ nationalised pension	Primarily private plans or combination	Lump sum benefit	Annuitisation	Combination	Comments	Annuity pricing comments
40	Portugal	x				x		
41	Russia	x			x			
42	Saudi Arabia	x				x		
43	Singapore	x				x	Withdrawal of pension savings is allowed for specific purposes, otherwise annuitisation is compulsory for a basic pension amount. Surplus may be taken as a lump sum.	
44	Slovakia		x			x	Besides state pension there is a nationalised voluntary DC system, payable as a life or living annuity.	
45	Slovenia	x			x			
46	South Korea		x			x	Private plan benefits may be taken as a lump sum or life annuity guaranteed for five years.	
47	Spain	x			x			
48	Sri Lanka	x		x				
49	Sweden	x			x			
50	Switzerland		x			x	Occupational plans are mandatory but design is flexible. Benefits can be taken as a lump sum. Annuitisation rates are high.	
51	Taiwan	x				x		
52	Thailand		x	x			Private plans are common given low level of state benefit, but benefits are payable as a lump sum.	
53	Turkey	x				x		
54	Ukraine	x			x			
55	UAE	x			x			
56	United Kingdom		x			x	Compulsory annuitisation reformed in 2015 for pension flexibility. Large and developed private annuity market, but annuity take-up has fallen dramatically since pension freedom.	Pricing is generally based on medical underwriting. Pricing is not regulated but fees and commissions are.
57	United States		x			x	Private plans are generally payable as a lump sum or living annuity.	
58	Vietnam	x			x			