Institute and Faculty of Actuaries

Identifying opportunities for innovation in post-retirement products

Paper 1 - A summary of current retirement products and principles for assessing success

by the Modelling innovative pre and post retirement products working party

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Identifying opportunities for innovation in post-retirement products: Paper 1 - A summary of current retirement products and principles for assessing success

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Abstract

The Pensions Freedom in 2015 has introduced flexibility in the products that retirees are able to purchase for providing the required income after retirement. However, there are limited number of products available for consumers to choose from to date with many opting for drawdown and traditional annuity contracts.

The working party believes that there are other products, both new and existing, that could play an important role in addressing the gaps for meeting different consumer needs at retirements.

The working party aims to publish two reports as part of the research, with this report being the first.

This report summarises the products considered by the working party and the key consumer needs that will need to be considered at retirement based on the initial review of available publications. The report also considers, at a high-level, the extent that the solutions considered have the potential to meet the different consumer needs. This report also describes the framework that the working party proposes to use for measuring the success of these solutions in meeting different consumer needs. The working party recognises that the best solutions may in fact be a combination of different products.

The working party intends to perform more detailed analysis as a next step of which the quantitative element will include modelling the different products and strategies. The results of the detailed analysis will be presented in the second paper.

The intention of the working party in publishing two separate paper is to gather feedback from the wider community on the identified products and the proposed framework for measuring success which could be incorporated into the analysis performed and presented in the second paper.

Therefore, the working party welcomes any feedback or suggestions on the items covered in this paper.

Keywords

Retirement products; Innovative; Assessing success; DC decumulation

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1. Introduction

Following the introduction of pensions "Freedom and Choice" by George Osborne in 2015, the retirement landscape for defined contribution pensions has changed markedly. It is now uncommon for people to purchase an annuity at retirement[1] and most will draw money from their pension arrangement in a more ad-hoc manner. In practice it is therefore clear that this additional flexibility is valued by consumers.

However, it is equally clear that dangers lurk within the new framework. Many people will now no longer have a guaranteed income for life above the State Pension, and are therefore exposed to a longevity risk that they may not fully appreciate. In addition, the typical consumer is ill-equipped to manage the complex investment decisions required to manage retirement drawdown most effectively.

It is equally clear that these are areas where actuaries, and the life insurance industry in particular, can add value. The pooling and proper management of longevity and investment risk will give a key advantage to consumers over and above drawing down from what is otherwise simply a savings arrangement.

The continued growth of and reliance on defined contribution pensions has seen the number of policies and total assets in DC increase significantly in recent years: the number of policies has risen from 2.3 million to over 20 million and assets have risen from £20bn to c£87.5bn[2] over the period from 2012 to 2021 for occupational schemes alone. There is therefore an increasing need and demand for DC retirement products or strategies that could meet the requirements of different consumer groups.

This presents both an opportunity and a challenge to the pensions and life insurance industry. However, six years on from the introduction of the new freedoms, there remain few new, innovative, solutions available to consumers in the UK market. What are the reasons for this, and what can be done to support further innovation in this area?

This paper starts by examining both the theoretical needs of a consumer approaching retirement and what in practice consumers find attractive in a retirement recognising both that these are not always the same thing and that these will change over time.

The paper goes on to take a look at existing products, including:

- products that are currently available
- products that have previously been available in the UK, and reasons they no longer are
- products that are available outside of the UK, and whether they could be replicated in the UK

A summary is then drawn of how these products meet, or fall short of, the identified consumer needs and wants. In this paper references to a "product" refer to a single product type, falling under a particular category of regulation. References to "solution" or "strategy" refer to a combination of different products or investment solutions, each part of which may be set up and dealt with under separate regulations.

The paper concludes by proposing:

1) a selection of potential retirement products and/or investment techniques that could help improve the options available to consumers on retirement, and
2) a framework for assessing how successful the different approaches are when measured against these consumer needs and wants.

[1] https://www.fca.org.uk/data/retirement-income-market-data
[2] https://www.thepensionsregulator.gov.uk/en/document-library/research-and-analysis/dc-trust-scheme-return-data-2020-2021

The Working Party proposes to carry out modelling to analyse the success of each suggested approach against the outlined framework. The conclusions of this next stage of the Working Party's research will follow in Paper 2 - Modelling existing and alternative strategies.

The Working Party envisages that the results of this modelling can be used to map out the products, solutions, or combinations, that suit different retirement needs as they change over time. For example, to identify the best solution for:

- an individual with a high desire for flexibility early in retirement, but a high desire for security later in retirement, and no bequest motivation;

compared with the best solution for:

- an individual with low desire for security throughout (as they may have, for example, other guaranteed income from a DB pension or similar) and a high bequest motivation.

2. Methodology

2.1. Approach

The Working Party has carried out a review of existing research on these topics. The conclusions of this review are set out in the next section of this paper.

The analysis we have performed includes:

- **Qualitative review of existing research on consumers' needs and wants** - what do consumers wish to see from a retirement product and how does this differ from their theoretical needs? How does this change for different types of consumer?

- **Qualitative review of products currently available in the market** - in what ways are these products limited, and what are the potential customer needs which aren't being met (e.g. a desire for security in later life but flexibility in early years during semi-retirement)?

- **Qualitative review of products which could hypothetically meet these customer needs** (e.g. tontines, deferred annuities) - why haven't these been popular in the past in the UK? How could they be adapted to meet customers' and insurance companies' needs?

The analysis done in this paper shall not be viewed as comprehensive or complete and is intended to initiate further debate and discussions amongst the community.

2.2. Literature Review

There is a considerable body of existing research into different approaches to retirement, covering almost all aspects of the UK retirement landscape. Of most interest to this Working Party is research on the following topics:

- analysis of which types of consumers are most in need of new and innovative solutions, and which are already adequately served by existing products;
- what consumers wish for from a retirement product; and
- analysis of the effectiveness of various existing and potential solutions in retirement.

The papers that we have reviewed are listed in the Appendix.

2.3. Refining the Scope

The Working Party recognises the breadth of the topics that are relevant for a holistic approach to this topic. The scope of this paper, and the subsequent modelling proposed, focusses on how individual needs (which change over time) can best be supported by different post retirement products. However the Working Party notes that there are a range of wider considerations which are beyond the resources of this Working Party to consider, including:

- the optimal approach to decumulation; this Working Party is following closely the work of their sister "Decumulation Pathways" Working Party
- how products and solutions can be improved in the pre-retirement stage to reflect and accommodate improved post retirement solutions – ultimately providing a smooth to and through approach which moves beyond the increasingly redundant concept of a distinct retirement date
- the role of advice and need for non-advised default solutions
- the importance of a digital, ergonomic user platform

- the need for high quality financial education[3]

[3] https://www.actuaries.org.uk/system/files/field/document/Financial%20Literacy%20Working%20Party%20paper_20200831.pdf

3. Consumer needs and wants

This section discusses the different needs and wants that customers may be looking for in retirement. These will form the basis for assessing whether the different products or strategies will be attractive for consumers, both qualitatively and quantitatively.

Several research initiatives have been conducted to assess the appetite of various consumer groups and the common themes highlighted are around flexibility or certainty of income. For example:

- Research conducted by NEST[4] noted that the three top preferences for retirement products are that they are guaranteed for life, offer inflation-protected incomes and don't carry significant market risk. This is in contrast to actual behaviours observed following pension freedoms.

- A policy briefing published by the IFoA on this topic[5] approached its assessment based on consumers taking decisions on a spectrum from maximum flexibility to maximum certainty.

The working party has identified some additional consumer needs and wants that should be taken into account. The list below is intended to provide an indication of the different consumer considerations and is not intended to be an exhaustive list.

3.1. Management of longevity risk

A low probability of running out of funds before death will be desirable. Running out of funds should include fund levels falling below a meaningful level - eking out an income of pence per year is tantamount to running out of funds.

3.2. Reliability of income amount

Retirees will wish to have enough to live on from to year, and for the income to be reasonably stable over time. This consists of more than one element:

- having some form of inflation protection
- starting with a high enough income to meet their needs
- having an income that is not too volatile

3.3. Perception of good value for money

Although annuities have many of the qualities that a retiree is in theory looking for, they have not been able to maintain favour with the consumer. This is partly due to a perception of poor value for money - the exchange of the largest sum of money most people will have ever saved for a small annual income does not sit well with most consumers, regardless of whether theoretically it is a fair exchange. The framing of DC pensions as an accumulated capital sum rather than a pension income is a key factor here, and together with lower overall contribution rates, is a significant consequence of the shift from DB pensions to DC.

Consumers historically have also been uncomfortable with the potential regret risk associated with purchasing an annuity, if the member dies shortly after purchasing the annuity, or shortly after any guarantee period expires.

[4] NEST research: https://www.nestpensions.org.uk/schemeweb/dam/nestlibrary/the-future-of-retirement.pdf
[5] IFoA policy briefing: Can we help consumers avoid running out of money in retirement?

Any new product will therefore need to appear to be, as well as actually be, good value for money. Transparency on expected returns, or greater disclosure of how the insurer profits from the product, may help explain the value being provided, but is unlikely to fully solve this challenge.

3.4. Flexibility (i.e., the ability to change a solution over time)

Another feature of annuities that has proved unattractive is the inability to make any changes once the annuity has been taken out. It is the Working Party's view that most consumers are in fact unlikely to make many changes to their retirement product over time, however almost all will derive comfort from the ability to do so if they wish.

This is therefore a feature that is worth exploring further, as it may be possible to offer a degree of flexibility if in practice it is a rarely used tool.

3.5. Simplicity

Any retirement solution must be simple for consumers to understand, in principle at least. One of the main reasons that innovative products launched since 2015 have failed to gain traction appears to be a perception of complexity.

3.6. Low maintenance for the consumer

The success of auto enrolment demonstrates clearly that consumers often do not follow through on any action in relation to their pension savings even if there is some intent to do so. Also, as people age their ability to process complex financial decisions starts to deteriorate. For both these reasons it is imperative that any retirement solution requires minimal input from the consumer on an ongoing basis.

3.7. Possibility of leaving a bequest

Following the introduction of Freedom and Choice in 2015, it appears that consumers do value the ability (or at least the option) to leave a bequest to their family. This is likely therefore to be an attractive optional feature for any retirement solution.

3.8. Evolution over time

The relative importance of the above factors will vary over an individual's retirement. For example, concerns about outliving their savings will likely be a high priority for those in their 80s or 90s while consumers in their 60s may not consider this an immediate concern. Conversely, members consumer in their 60s or 70s are likely to be concerned about whether they are getting good value from their saving, whether they have any flexibility to change their set up over time, and the ability to leave a bequest.

An efficient retirement product would therefore be one which provides flexibility and ownership in the early years but switches to provide less flexibility in return for longevity protection in later years.

4. Retirement products considered by the Working Party

4.1. Summary of products and whether they meet consumer needs and wants

The working party has considered a variety of products which includes:

- Those that have been around for a number of years and are still actively being sold in the UK market;
- Those that have been around in the past but are no longer popular/sold in the UK market; and
- New product ideas that are actively being explored.

The table sets out the products we have considered and a high-level indication on whether it has potential for meeting the consumer needs and wants as set out in section 3 above. This high-level assessment has been done qualitatively only and is not based on any quantitative analysis which will form part of the second paper.

Products	Longevity protection	Reliability of income amount	Perception of value provided	Flexibility	Simplicity	Low maintenance	Bequest potential	Evolution over time
Immediate annuities	Yes	?? [2]	?? [5]	No	Yes	Yes	Optional spouse's benefit	No
Deferred annuities	Yes			No	Yes	Yes	Optional spouse's benefit	No
Variable annuities	Yes	Yes [3]		Yes [6]	No	No	Optional spouse's benefit	Yes
Investment linked annuities (including with-profit)	Yes			No	No	Yes	Optional spouse's benefit	No
Tontines	Some [1]	?? [4]		?? [4]	No	Yes	?? [4]	?? [4]
Equity Release Mortgages	No	No		Yes	Yes [8]	Yes	Yes [9]	Yes
Drawdown	No	No		Yes	Yes	No	Yes	Yes
Drawdown + Annuity	Yes	?? [2]		Yes [7]	Yes	No	No [10]	Yes [7]

Notes:

1. Tontines are typically structured to provide income for life but there is no legal obligation for payments to be made (i.e., no form of guarantee)
2. This depends on whether the annuity payments increase with inflation
3. Investments structured to provide some form of protection against rising inflation
4. This depends on the type of tontine (e.g., some tontines provide the option to exit the scheme)
5. Most products have had some form of reputational issues previously (with drawdown perhaps being the only exception to date in the UK)
6. To the extent that investment strategy could be changed, there is typically a hefty fee for surrendering the policy
7. Only the drawdown portion
8. Product itself may be simple to understand although customers may not necessarily fully understand that they could potentially not get anything back from the sale of their property
9. Provided outstanding loan amount at end of policy is less than the sale proceeds of the property
10. Assuming the drawdown fund fully transfers to an annuity

Table 1: Products considered and whether it meets consumer needs and wants

Please note that while we have assessed a wide range of products, the above is not intended to be an exhaustive list. We would therefore welcome any suggestions from readers in terms of other products that we could consider.

4.2. Potential products to consider further

Based on the high-level assessment above, we have identified a number of products that are less popular in the UK (perhaps due to previous reputational issues) but we believe could play an important role in meeting some of the key consumer needs (either in isolation or when combined with other products) and therefore merit further consideration.

In this section, we will provide some background information of the following products and discuss the benefits, challenges, and commercial considerations of each of them:

- Deferred annuities;
- Variable annuities;
- Tontines;
- Equity release mortgages; and
- Combination of drawdown and annuities.

These products will be included together with the more traditional products (e.g., immediate annuities) in determining alternative strategies as part of Paper 2.

4.2.1. Deferred annuities

Background

Deferred annuities are a type of annuity where the payments to the policyholder only happen at a later time agreed at the start of the contract. Similar to immediate annuities, deferred annuities could either provide fixed or variable payments. The contract can be paid for with a single premium, multiple premiums or regular contributions.

A deferred annuity contract can be viewed as being made up by two separate phases, an accumulation phase and a pay-out phase. The accumulation phase is the same as the deferment period where the amount paid accrues. At the end of the deferment period, the policyholder starts receiving payments – i.e., the pay-out phase.

Benefits

Deferred annuities seem like an obvious solution to providing longevity protection to retirees. They guarantee, at outset, the terms of a future regular income stream once the deferment age has been reached. This permits more flexible access to pension funds in the deferral period. Another benefit is that, by purchasing the annuity early in retirement, the retiree makes decisions for later life ahead of time and won’t need to make difficult decisions about finances later in life once cognitive decline may affect rational decision making. However, deferred annuities are not widely offered in the UK to retail customers.

Deferred annuities sales are more buoyant in certain countries. The USA, Australia and Denmark all have deferred annuity markets which have been encouraged by tax efficiency or compulsory purchase.

Challenges and risks

Customers are required to put money upfront in a deferred annuity contract with any payments only being made to them after a period of time which makes it harder for potential customers to see the benefit of the product.

Additionally, depending on the characteristics of the deferred annuity product, the annuity payments that the policyholder receives at the end of the deferment period may be unknown and depends on the accumulated value. Certain products may guarantee a minimum annuity payment amount which will come at an additional cost to the customer.

Commercial considerations

A key barrier to deferred annuities not being widely offered to retail customers in the UK is that the provider still needs to hold a significant amount of capital to cover the tail longevity and market risks. For any given individual, a deferred annuity premium will be lower than an immediate annuity premium for the same level of income and therefore the return on capital would naturally be smaller than for immediate annuities. The high capital strain relative to lower profits is not an attractive proposition for market participants.

The relative profit and capital for immediate annuities and deferred annuities can be explained by way of an example. The example below covers only the longevity component of the Solvency II Solvency Capital Requirement (SCR), calculated using the standard model. Similar results would apply for market risk components of the SCR[6].

John, a 65-year-old male in average health, has purchased an immediate annuity of £5,000 pa. This represents a provider liability of £97,400[7], with an associated SCR (for the longevity component) of £5,900[8]. If, for example, the provider is able to make 5% profit on the liability then the provider makes a profit of £4,900 on the £5,900 it has tied up in capital.

If instead John purchases a deferred annuity of £5,000 pa starting in 20 years, the liability to the provider is £18,500, but the associated longevity component of the SCR has only reduced to £4,100. This is because much of the tail longevity risk remains. If the provider is assumed to only be able to make a similar 5% profit on the liability, then the profit would be £900, for the £4,100 capital tied up. This is clearly less attractive to the provider.

For the provider to make a similar level of profit per pound of capital then the profit margin would need to be 18.5% of the liability. This may seem high but customers who value the protection that deferred annuities offer, and don't want to tie themselves into an immediate annuity at the outset of their retirement, may be willing to pay for this level of protection. To support this level of profit the deferred annuity would cost c£21,900 compared to a fair value of £18,500 (ignoring expenses in both). As with immediate annuities, the problem here is that retirees are paying for the risk of population longevity increasing (i.e., the cost of the capital requirements set up for the policy), whereas they are likely to only want protection for their own specific longevity risk.

4.2.2. Variable annuities

Background

Variable annuities, also known as 'third-way' or 'hybrid' products, are seen as a cross between annuities and income drawdown products. They aim to provide customers with the flexibility of an income drawdown whilst still offering customers some level of guaranteed income for life. They differ from investment-linked annuities (such as unit-linked and with-profit annuities) as they include an element of guarantee on the investment.

In some markets such as the US and Japan, variable annuities are successful. However, in the UK they have failed to gain traction.

Variable annuities were originally launched in the UK in April 2005 by Hartford Life, a US company. In 2006 and 2007 other companies such as AXA, MetLife and Aegon also launched variable annuities. The size of the market grew fairly quickly, with sales increasing to over a billion pounds by 2008.

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[6] In particular for credit risk, where the capital charges increase with duration and so would be proportionately larger for a deferred annuity than an immediate annuity.

[7] Projected using pensioner mortality rates from CMI's "08" series – i.e. PMA 08 mortality tables and discounted using Solvency II risk-free curve.

[8] Determined as the difference between the pre and post stressed liability values.

However due to turbulent financial markets in 2009, the cost of providing guarantees increased, for this reason both Prudential and Standard Life announced that they would be delaying their variable annuity product launches and both MetLife and Aegon had to increase their guarantee charges. In addition, Hartford Life pulled out entirely of the UK market.

After the announcement of pension freedoms in April 2014, there was a renewed interest in variable annuities, with many predicting that hybrid annuity-drawdown products would become an attractive choice for consumers once pension's freedom was implemented. Several companies, including MetLife and Aegon launched new variable annuity products, such as 'guaranteed drawdowns' to coincide with the implementation of the new legislation.

However, the boom in variable annuity sales failed to materialise. In the first year of pension freedoms, traditional annuities still outsold hybrid drawdown-annuity products, by a ratio of more than 50 to one. Axa, MetLife and Aegon all withdrew from the variable annuity market between 2016 and 2018.

Benefits

Variable annuities provide the flexibility that other forms of annuities are lacking as they allow the customer to alter the amount of income at any given year. The product also comes with different forms of guarantees which give the policyholder some protection and certainty in income but allows policyholders to retain the upside potential of investments growth.

Challenges, risks and commercial considerations

While there are guarantees in place, these are typically on a minimum amount only and the income on variable annuities could vary significantly. Therefore, they represent a riskier option than the traditional fixed annuities.

The products were considered to have high guarantee charges as well as complex design. This led to few advisers recommending them to their clients and subsequently poor sales.

Additionally, consumers may also be subject to significant surrender fees if they have to withdraw money for emergencies.

4.2.3. Tontines

Background

Tontines are by no means new: they have existed since the 17th century, although they lost their popularity at the start of 20th century and since then structures of this kind have been relatively uncommon, although a more modern example includes the Mercer Lifetime Plus solution currently available in Australia.

However, there has been a wave of interest and research in this field in the US, Canada and the UK recently, including at project commissioned by the Actuarial Research Centre[9], suggesting a revival of tontines may be on the horizon. A recent publication in FT suggests that pension plans with tontine-like characteristics are currently being considered in the UK (Royal Mail), the Netherlands, Canada and Japan[10]. It is likely that a modern tontine would take a slightly different form to the original versions, overcoming some of the issues associated with previous versions.

The key features of this modern tontine would be:

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[9] https://www.actuaries.org.uk/learn-and-develop/research-and-knowledge/actuarial-research-centre-arc/recent-research/optimising-future-pension-plans-phase-i

[10] FT Lex Opinion, 25 July 2021, "Tontines: not such a murderous idea" https://www.ft.com/content/df283b32-56e1-442a-82e1-afea6d5f5cbf?accessToken=zwAAAXryKGsIkdPfKDsyVuFEKtOC4a_qbV9cvw.MEUCIQCuWTDlHm-LZ3K5P7r5QseRolwwrwHlc6W64P05riRw6QIgeLvGBLXyUh86qAQOAGla27w4IhWDXWnv4PKN7GEH4Kg&sharetype=gift?token=54d9e171-7309-40fc-b8f0-649987b9fcae

- A large number of individuals pooling their mortality risks together
- Each individual surviving a specified period is entitled to receive their share of the accounts of those individuals who died in the period
- Distributions are actuarially fair at each point in time, meaning that it would be theoretically possible to allow new joiners and/or leavers
- Investment returns are specific to the individual's selected investment strategy
- Income is not guaranteed, but for surviving members will be higher than if they were not pooling their risk
- Schemes could be designed to operate continuously for a very long time, across generations

The diagram below sets out the high-level structure of an example tontine.

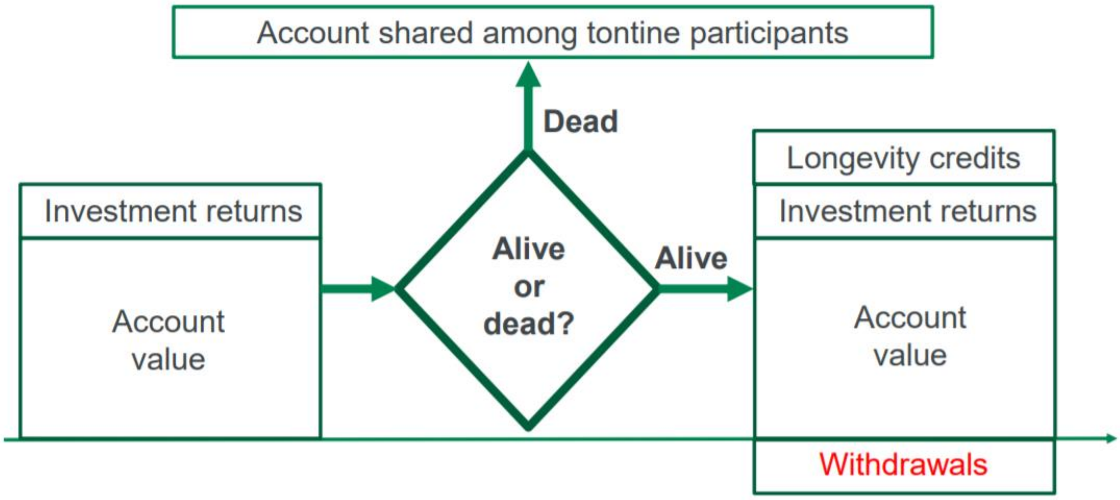

Figure 1: Example of modern tontine[11]

Benefits

One of the advantages of a modern tontine is the potential for higher income than an annuity. Because the income is not guaranteed, it eliminates the need for insurers to hold capital against longevity risk and therefore charge to guarantee the income.

During the early years, the expected longevity credits paid to surviving members from the accounts of those who die will increase with age as more participants of the scheme die, making their wealth available for distribution among survivors. During the later years other factors will come into play, as lower remaining assets from fewer remaining members are shared across a diminishing pool of survivors.

Tontines can be structured in a relatively transparent manner, making the product easy to explain.

From an insurer's perspective, tontines again are likely to look attractive as capital requirements for these products are likely to be significantly reduced (depending on product design) compared with an annuity.

Challenges and risks

[11] Source: Actuarial Research Centre Life Conference presentation on tontines on 22 Nov 2018

There is a moral challenge posed by the tontine structure in that members will benefit from the death of other members within their tontine cohort. There is therefore a personal financial incentive to cause the death of another (more directly that in an annuity product, for example). This is what led to tontines previously developing an unsavoury reputation, and indeed their currently legality in the UK is not clear[12], in particular where the border lies between a tontine and an insurance product.

A modern tontine would need to completely address these issues. A key part of the solution is likely to be the scale: it would be desirable to have sufficient scale such that the death or withdrawal of one (or a handful) of individuals does not significantly alter the amount of the longevity credits. Additionally, a limit on the maximum size of one individual's investment in the tontine would be advisable.

From a pensions perspective, one of the major challenges with tontine-based products is that the income is not guaranteed. Final income depends on mortality experience of the scheme and the individual's investment returns. This is an area where insurers can add value by offering guarantees as optional variations on standard products, potentially providing degrees of possibilities in between a tontine and an annuity.

Additionally, the payment pattern from a tontine may potentially be volatile (i.e., as deaths occur). This, however, may present an opportunity for insurance companies to offer smoothing mechanisms for a fee.

Modern Tontines may therefore be structured in a number of ways to provide a variety of retirement benefits and address the concerns mentioned above.

Another challenge for tontine providers would be overcoming the negative reputation tontines have earned in the past and getting financial advisors and pension scheme trustees on board.

Additionally, depending on the product design, it is likely that investment into new administration systems will be required in order to ensure the product can be supported in the long term and that it is managed efficiently.

Commercial considerations

The tontine will need to include a large pool of heterogeneous members. The most natural providers could therefore be either insurance companies, or large trust-based schemes, for example Master Trusts or a new Collective Defined Contribution (CDC) scheme.

From an insurer's perspective, the profit that insurers receive from offering a tontine is expected to be lower than from annuities. For annuities, the insurer provides a guarantee that the policyholders receive income for as long as they live and a profit margin is typically included when charging for the guarantee provided.

However, insurers could offer some smoothing mechanism such as with-profits funds and charge a fee. There will also be a fee for operating the tontine. Insurers could also charge their fees as a % of assets - similar to unit linked products.

Given the absence of guarantees, the capital requirement for the insurer will be low and hence tontines are likely to be an attractive product for providers, although this will depend largely on the detail of the product.

Large Master Trusts (and potentially larger single-trust DC) schemes could offer tontines as part of their post retirement solution, as could large Collective Defined Contribution (CDC) schemes.

[12] https://www.gov.uk/hmrc-internal-manuals/company-taxation-manual/ctm40810

They are likely to be cost efficient as the cost of running a tontine-based scheme would be lower and be included into an annual management charge. The product could be kept very simple and easy to administer.

There are therefore no immediately obvious reasons why a well-designed and communicated modern tontine could not be a successful retirement product in today's market.

4.2.4. Equity release mortgages

Features

Equity Release Mortgage ("ERM") is a product which enables the release of equity/cash from the property, which is the customer's main residence. There are two forms of ERM in the UK – lifetime mortgages and home reversions.

Lifetime mortgages – With lifetime mortgages, the policyholder retains ownership of the property and continues to benefit from any increases in property price. Interest accrues on the initial loan over the lifetime of the policy which ends when the policyholder dies or enters long term care. The property is then sold and a lump sum payment consisting of outstanding capital and interest is made.

Home reversions – Under home reversion policies, the policyholder sells a portion of the property but continues to stay in the property. No interest is paid but the policyholder only benefits from increase in value of the proportion that they still own.

Home reversion plans have become less popular over time and only form a small part of the UK market at present.

There has been an increase in product innovation in recent years and below are some examples of different product features available on ERMs:

- Releasing cash as a lump sum or over time (i.e., drawdown);
- Ability to repay some or all of the interest (instead of accruing over the lifetime of the loan);
- Ability to prepay a proportion of the amount borrowed without any early redemption charge; and
- Providing an inheritance guarantee where if a borrower takes out less than the maximum amount offered, the difference is protected and deducted from future sales.

The market has continued to exhibit growth over the last few years and despite the pandemic, the amount of total ERM lending was £3.89bn[13]over 2020.

Benefits

ERMs have played (and are likely to continue to play) an important role in the retirement market as they provide the opportunity for individuals to release some of the wealth in their property and continue to live rent free without having to relocate. They can be particularly attractive to consumers who often have few other options for borrowing while in retirement.

ERMs also typically come with a No-Negative Equity Guarantee ("NNEG") which ensures that the amount repaid will not be higher than the sales price of the property. This offers the policyholder additional protection and avoids the need for dependants to make up any shortfall (something which the previous version of ERMs without the NNEG has been criticised for).

Challenges and risks

Whilst ERMs may be an effective way of releasing cash tied up in properties, potential customers may be wary of taking one out as it could lead to negative perceptions that it will reduce the inheritance

[13] Equity Release Council Spring 2021 Market Report.

available to dependants and it could also be perceived as a failure to plan for retirement. This can be accompanied by pressure or apprehension from family members.

Other challenges include:

- The interest rates charged on ERMs are often higher than other more traditional lending options, although other options may not be available to retired consumers. For example, interest rates on ERMs averaged 4.07% p.a. in April 2021[14] and in comparison, interest rates on personal loans starts at 2.9% p.a.[15] .Another alternative would be remortgaging which will allow consumers to pay residential mortgage rates that are lower (on average 2.49% for a two-year fixed mortgage taken out in December 2020[16]) but most providers will have an age threshold so this option may not necessary be available[17].
- The effect of compounding accelerates the rate at which the estate contribution from the property diminishes in value over time.
- Consumers may need to pay early repayment charges if their circumstances change.

Commercial considerations

The majority of ERMs have been funded by insurers who are looking to match their long-term liabilities (i.e., annuities). Firms in the UK are also able to benefit from Matching Adjustment ("MA") which reduces the Best Estimate Liabilities and Solvency II capital requirements on their Solvency II balance sheets.

This coupled with the large demand from consumers will likely continue to make ERMs an attractive product for firms to offer.

However, there are a number of other aspects that firms will need to consider:

- To benefit from the MA, firms will need to restructure the ERMs into senior note(s) which provides fixed cashflow and come up with an internal rating for them. This will come at a cost in terms of setting up a framework, getting it approved by regulators and ongoing management. Firms will also need to apply for Internal Model (if they don't already have one) as the structured notes will likely get hit by a 100% capital charge under the standard formula.
- ERMs have also received significant amount of regulatory scrutiny and most recently this was in terms of how the NNEG has been valued by firms. The PRA has set out its expectations recently and this represents a significant change to how some firms were previously valuing the NNEG.
- Dilapidation risks (i.e., risk that the property value is dampened due to lack of care and maintenance). There is a risk that policyholders may not have any incentives to maintain the property especially if they expect the outstanding loan amount (i.e., including interest accrued) to take up most (if not all) of the sales proceeds. This is an area where there is generally a lack of data on for informing an appropriate assumption.
- Basis risks exist where the indexed property values used to value the ERMs may differ from the true underlying value of the specific properties on an insurer's books, for example due to differences in the customer cohort.

[14] Moneyfacts.co.uk - https://moneyfacts.co.uk/news/retirement/equity-release-choice-at-record-high/
[15] The Times money mentor - https://www.thetimes.co.uk/money-mentor/article/is-equity-release-good-idea/
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4.2.5. Combining immediate annuity with drawdown

Features

A product automatically combining drawdown with an annuity could provide an attractive balance between the need for flexibility and the need for certainty.

Simplistically, there are two main approaches to structuring such a combined product, as illustrated in Figure 2:

a) A drawdown product which later transitions to an annuity at a certain age, or after a certain length of time;
b) An immediate annuity providing a minimum income guarantee with the ability to take more flexible drawdowns over and above this amount.

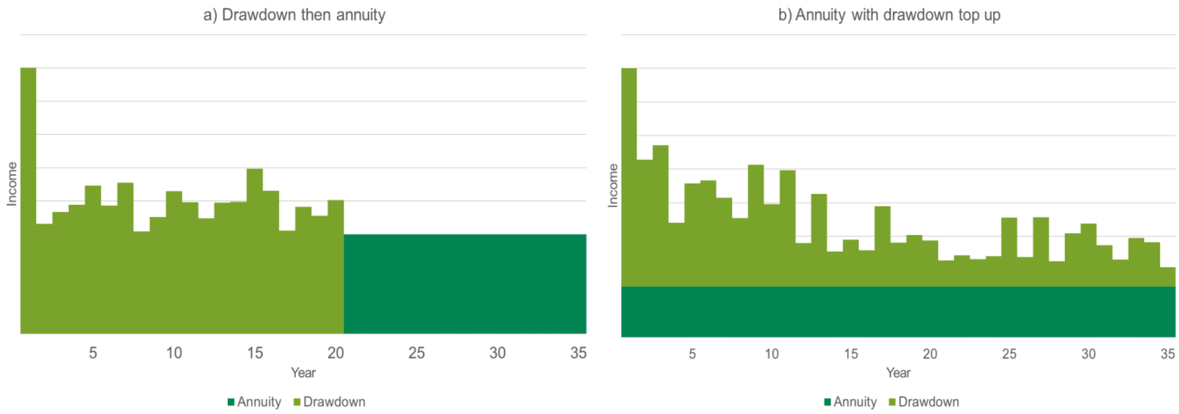

Figure 2: Illustrative income patterns for combining a drawdown product with an annuity

For an informed, or advised, individual either of these options are possible using products in the marketplace today by allocating separate pots for annuity purchase and drawdown. However, there are a number of key decisions that an individual embarking on this path would need to tackle, as set out in Table 2:

a) Drawdown then annuity	b) Annuity with drawdown top up
How much capital to allocate to annuity versus drawdown	
Amount to draw down each year until annuity purchase	Amount to draw down each year until fund is exhausted
Age at which to start annuity	N/a
Investment strategy for annuity pot from retirement to purchase*	N/a
Appropriate investment strategy for drawdown portion	
Other decisions associated with purchasing an annuity, e.g., guarantees, spouse's pension, indexation.	

Table 2: Key decisions to consider under the different approaches for combining drawdown and annuity products

**Currently it is only possible to purchase an annuity with a single-lump sum (albeit potentially further tranches can be bought with further lump sums); a further option not currently available might be to purchase an annuity with regular premiums during the drawdown phase*

These strategies would therefore only currently typically be adopted by the most financially-sophisticated consumers. A product which could have mass-market appeal will need to automate, or make implicit default decisions, for each of the points in the table above.

It is also the case that retirees in the UK (under current rules) will have access to a state pension which is inflation linked and is guaranteed by the government.

Through the state pension most retirees will therefore already have a minimum guaranteed income. However, the state pension is likely to be insufficient at current levels to meet the needs of many retirees so drawdown alone above the level of the state pension will not be an optimal solution for many.

Ideally therefore consumers would have access to a solution that provides a default framework for the combining of an annuity with drawdown, which is designed to account for the relative importance to them of the State Pension, and potentially other sources of wealth or pension income.

This type of structure could provide flexibility for individuals to tailor their own solution according to their specific needs, while providing a central pathway to help frame the decisions needed. For example, an individual may feel confident deciding that they wish to amend the central pathway to purchase an annuity at age 85 rather than 80, say, whereas they may not feel equipped to design the whole concept from scratch themselves.

Benefits

The needs of the typical consumer are likely to change over the course of their retirement. In particular, flexibility is of prime importance in the early years, as consumers are not yet clear on the pattern of their retirement spending habits. In later years, longevity protection becomes much more of a concern. The key benefit of a solution combining an annuity with drawdown is that it can allow for this changing dynamic.

A further benefit is that by purchasing an annuity for a minimum level of income (above the State Pension), an individual is free to pursue a higher-risk investment strategy for their remaining funds, increasing the efficiency of the overall solution. This is because the impact of sequencing risk is less severe if the consequence is that the individual has to fall back on a guaranteed minimum level of income, rather than running out of private pension provision entirely.

Further flexibilities can also be built in to this type of solution. For example, a combined product lends itself to having the annuity structured as a product held within the drawdown wrapper. The annuity then pays regular income into the fund, which can then be drawn down or not, according to the individual's spending and tax-management needs. This type of solution can also allow the annuity to be surrendered if required, or provide some residual benefit on death (albeit at a limited level).

There are relatively few barriers to developing this type of product, which will be discussed below.

Challenges and risks

There are some key differences in the financial risks that consumers would be exposed to under these two approaches.

	a) Drawdown then annuity	b) Annuity with drawdown top up
Investment	Consumer is exposed to investment risk on the drawdown portfolio. Consumer is also exposed to investment risk on the annuity portfolio before annuity purchase.	Consumer is exposed to investment risk on the drawdown portfolio.
Annuity pricing	Consumer is exposed to changes in annuity prices during the drawdown phase.	N/a
Mortality drag	Although the cost of an annuity will be lower at older ages due to the shorter expected payment period, the benefit gained from mortality pooling will similarly be lower.	N/a
Inflation	Inflation will pose a risk to the real value of a consumer's income under either of these options, unless an inflation-linked annuity is purchased.	

Table 3: Comparison between the different approaches for combining drawdown and annuity products

A further challenge for delivering a combined product is the number of different ways it could be done, with no current established practice or obvious starting point. The introduction of combined products into the marketplace could therefore lead to a proliferation of slightly different approaches which are difficult for the consumer to compare.

For example, there could be variations in:

- The age (or length of time from inception) at which drawdown switches to an annuity
- How the balance is drawn between the amount held in drawdown and amount annuitised
- How the annuity premiums are paid – over time during the drawdown period, or in one sum at the transition point
- The underlying investment strategy
- The degree of flexibility offered to the consumer
- The degree of inflation protection built in
- Options for bequests
- How investment experience is allowed for in drawdown income and/or annuity amounts

Commercial considerations

A product combining annuity and drawdown is likely to have a broad market appeal. There is a growing post retirement market represented by large DC Master Trusts, as well as potentially the arrival of Collective Defined Contribution schemes, which would find such a product very appealing. This could negate a lot of the direct market costs of selling products direct to consumers.

Product providers are likely to find the principles of delivering such a product familiar, as it represents a combination of existing solutions. The costs and risks of development will therefore be well understood.

Commercially therefore this is likely to be an attractive option to provide. However, there remain some practical challenges, including:

- considerations around providing an annuity that is surrenderable;
- obtaining regulatory approval for more innovative annuity options;
- creating links between separate annuity and drawdown providers to provide a combined product: unless a central third party is used, the number of links required between different providers would be combinatorial;
- regulatory challenges surrounding the automatic purchase of an annuity: where sold to individuals there are stringent FCA rules encouraging shopping around and, for example, considering whether an enhanced annuity would be appropriate. It may be that in a trust-based DC scheme context the trustees' oversight of value for members would be sufficient, but this has not been tested in the context of a post-retirement solution.

4.3. Summary

While none of the products in isolation meets all the needs and wants for consumers, we believe that a combination of products could provide the right solution for consumers. We also note that different individuals will have different requirements which could be met by a different type of solution.

Examples of solutions we may consider for further modelling purposes includes (but is not limited to) the below:

- Different variations of annuity with drawdown top up;
- Drawdown followed by later life annuity (or using a deferred annuity);
- As above but with tontine rather than annuity; and
- Taking out ERM to finance an annuity. This may need to be across two providers in order to avoid any circularity, as often ERMs are funded by annuity premiums.
- Using ERM to continue to provide an income once drawdown fund is exhausted.

5. Potential framework for assessing success

In order to compare which products or investment techniques provide the best retirement solutions, it is necessary to establish metrics for measuring the success of a strategy.

Based on the research carried out to date the Working Party has concluded that to assess success in a retirement strategy it is necessary to allow for the following concepts, as well as traditional financial theory and different consumer types:

- Behavioural elements, where consumers do not necessarily desire the best theoretical solution
- How consumer needs differ over time
- The overall success of the whole retirement solution, not the component products in isolation

Table 4 details the Working Party's proposals for the metrics we intend to use to measure the success of the retirement strategies to be modelled. Each value will be determined for five-year periods up to age 95 (the limit of our modelling horizon), assuming retirement at age 65.

Criterion	Description	Value	Evolution over time
Longevity protection	Does the product or solution offer a complete longevity guarantee, or is it designed to typically allow consumers to maintain a certain level of income, in most cases?	**Binary** Is there a guarantee of a minimum level of income for life or not?	Consumers are likely to value this higher at later stages of retirement.
Reliability of income	What likelihood is there of the product or solution delivering nominal income above a certain threshold for whole of the model's time horizon?	**Quantitative model output** For what proportion of model scenarios does nominal income remain at least a minimum level?	Likely to be of relatively consistent importance over time.
Ability to maintain purchasing power	What likelihood is there of the product or solution delivering real income above a certain threshold for whole of the model's time horizon?	**Quantitative model output** For what proportion of model scenarios does real income remain at least a minimum level?	May be of greater importance in earlier years of retirement, due to spending habits tending to decrease in later years. For some categories of consumer, care costs may increase spending needs later in retirement.
Value provided	Is the product or solution expected to pay out over time a total value commensurate with what the consumer might expect?	**Quantitative model output** For what proportion of model scenarios does the total value paid out compared to the price paid exceed a specified threshold?	Likely to be of greater importance in earlier years of retirement.
Flexibility	Is there the ability for the consumer to refine the solution over time?	**Qualitative score** Score solutions on scale from 0 to 5, depending on ability to make changes over time, where:	Likely to be of greater importance in earlier years of retirement.

		0 – no ability to make changes (e.g., annuity contract) 5 – full flexibility (e.g., drawdown)	
Simplicity	Is the solution or product simple and intuitive to understand?	**Qualitative score** Score solutions on scale from 0 to 5, depending on ease of understanding, where: 0 – complex to understand (e.g., with profits) 5 – simple to understand (e.g., savings account)	Likely to be of relatively consistent importance over time.
Low ongoing maintenance	Does the product or solution require ongoing input, or is it more of a "set and forget" approach?	**Qualitative score** Score solutions on scale from 0 to 5, depending on ongoing input required to maintain strategy, where: 0 – regular ongoing input required (e.g., drawdown) 5 – no input required (e.g., annuity)	Likely to be of greater importance in later years of retirement.
Bequest potential	Is there a possibility of leaving a bequest or not?	**Quantitative model output** For what proportion of model scenarios does the total value remaining on death (including for example, the value of any contingent spouse's annuity) exceed a specified threshold?	Importance is likely to vary depending on consumer type – those with higher value of savings are expected to value this more and are likely to do so more in the earlier years of retirement.

Table 4: Proposed metrics for assessing success

The working party envisages constructing outputs for different retirement products or strategies as illustrated in Figure 3 for an inflation-linked single life annuity with a five-year guarantee period. This is illustrative only and does not represent the results of any modelling.

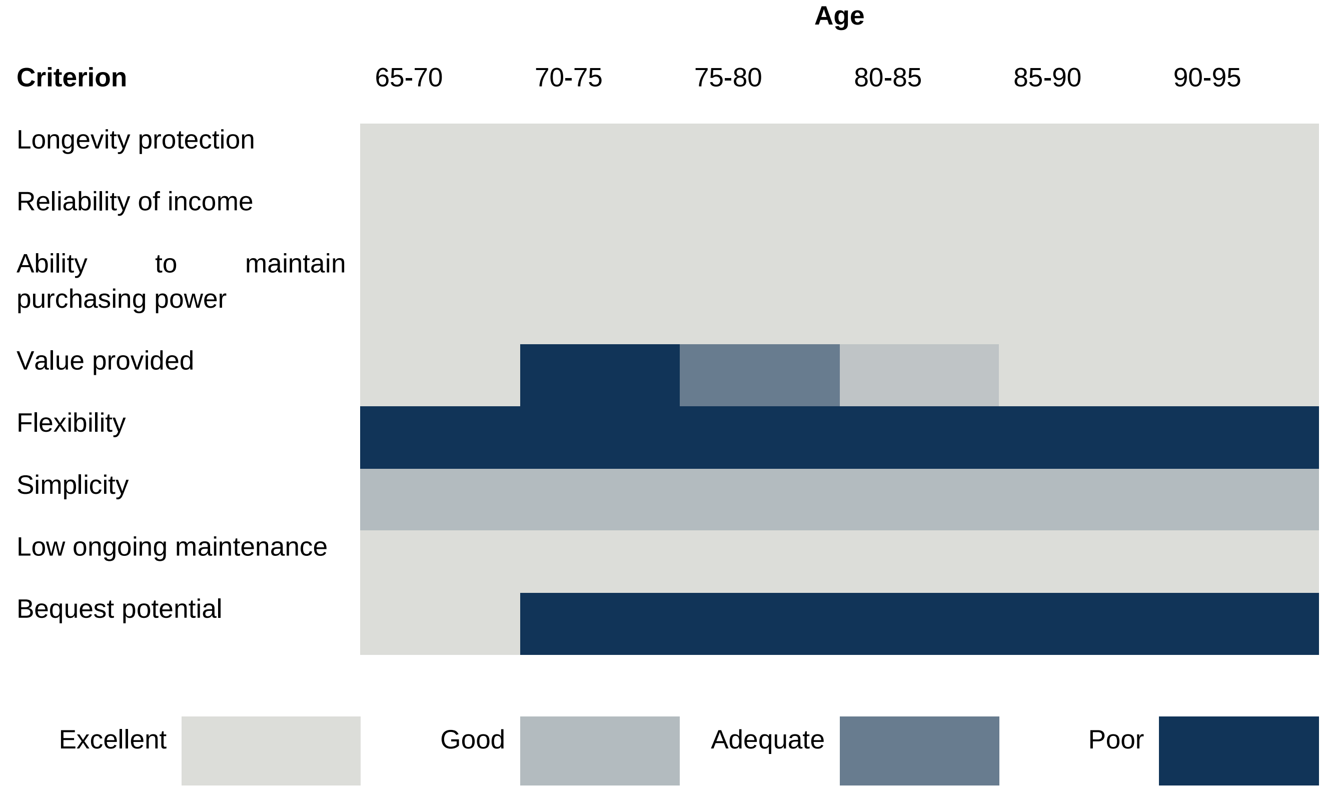

Figure 3: Illustrative output of analysis for inflation linked single life annuity with 5-year guarantee period

This can then be compared against the needs of a particular consumer type as well as factoring in other lifetime decisions that the consumer is able to make – e.g., whether to include cost on long term care.

6. Conclusions

The pensions landscape in the UK has undergone a significant shift in recent years, moving the risks associated with providing a retirement income away from employers and insurers and towards the individual themselves.

However, there is a lack of clearly defined and attractive solutions for individual retiring with DC savings in the UK, meaning that individuals are now exposed to significant risks which they may be ill-equipped to manage or absorb. In the current economic environment, persistently low interest rates make it difficult and very expensive to offer attractive guarantees. The basic interest rate trend is not expected to change in a significant way in the near future, and hence insurers and providers need to be more creative in offering new retirement solutions which are attractive and competitive.

That said, the demand for innovative products is growing and market is adjusting in order to meet this demand. This has been evidenced by the emergence of new offerings in the retirement market (for example, the re-launch of ERM in the UK in 2018) and in recent research on, for example, different variations of tontines and optimal decumulation pathways.

In this paper a number of products such as annuities, tontines, equity release mortgages, drawdown and their possible combinations have been discussed in detail. Some of these products are uncommon in the UK market but are popular in other markets (e.g., variable annuities in the US), while some generally do not exist in the modern life insurance market in their classical form (e.g., tontines). Still others are gaining popularity despite previous negative experience – for example, equity release mortgages. This demonstrates that there is potential for innovation on the one hand, but also that on the other hand there are challenges in adapting existing products or in bringing new ones to a different market. In particular different regulatory requirements and cultural backgrounds (which to a large extent determine the customer preferences) will create different challenges in different markets.

The working party has also set out in this paper their findings on one of the key aspects which needs to be considered for a product success: how well it meets customer needs. For post-retirement products the central needs are the longevity risk management and the provision of a regular income. Additionally, as the retirement products are a long-term commitment, individuals are also often looking for flexibility and a possibility of adjusting payments or benefits according to their own evolving circumstances. It is therefore likely that a combination of products rather than a single product will be able to better satisfy the changing needs of individuals in retirement.

Finally, in this paper we have proposed a framework which will serve as the basis for our second paper, where we intend to model the outcomes, an individual could expect from the different products discussed in this paper and various combination of those products. The working party will then assess which options may present the best solutions for different individual needs.

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Appendix – Additional details on tontines

Background

The basic concept of a tontine lies in pooling the mortality and investment risks of its member in a fund or scheme. The fund pays regular distributions based on the scheme's performance and makes periodical mortality credit distributions from the assets of members as they die. In this way they differ from an annuity as the mortality profits are shared between participants rather than with insurance company.

The first tontine can be traced back to the end of the 17th century.

"In 1693, England's King William III presided over the first government-issued tontine. In this first government-issued tontine, in exchange for a minimum payment of £100, participants were given the option of:

(a) investing in a tontine scheme paying guaranteed £10 dividends until the year 1700 and then £7 thereafter, or

(b) a life annuity paying £14 for life, but with no survivorship benefits.

Over a thousand Englishmen (but very few women) decided to invest in the tontine. The sums involved weren't trivial. The £100 entry fee would be worth close to £100,000 today. So, this was no impulse lottery purchase. Rather, some investors picked the tontine because they wanted the skewness that is, the potential for a very large pay-out if they survived while others wanted the more predictable annuity income option. The oldest survivor of King William's tontine of 1693 lived to age 100, earning £1,000 in her final year." – Milevsky and Salisbury, 2016.

At the start of the 20th century, tontines were a common retirement solution in the US, however they fell out of favour as some were used fraudulently.

There are a number of negative perceptions linked to tontines today:

- There remains a perception that they are illegal (and indeed some versions of tontines are banned in Malaysia, some states in the US, and the UK)
- They can sometimes be viewed as making profit from someone's death (although mortality profits form part of some existing with profits products)
- For some old structures it was essentially a lottery, where the "winner" took the entire fund/profit
- A troubled history involving providers taking money they were not entitled to from the tontines

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