



Institute
and Faculty
of Actuaries

Secondary annuity markets

Lessons from around the world

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1. Background

In March 2015, the UK Government announced a proposal to remove tax restrictions for people seeking to assign annuity income that is already in payment (HM Treasury, Department for Work and Pensions and others, 2015). The intention being that firms (financial services) would “purchase” the future stream of annuity income in return for a lump sum payment to the annuitant. The thrust behind this proposal was to seek to provide some element of choice to existing annuitants who had effectively missed out on the broader pensions freedoms introduced by Government, such as the removal of compulsory annuitisation.

HM Treasury and the Department for Work and Pensions subsequently released a call for evidence on whether Government should create a secondary annuity market and how it might operate. With key findings published in December 2015 (HM Treasury, Department for Work and Pensions and others, 2015), the call for evidence looked at extending the Government’s work on freedom and choice in pensions to those who have purchased an annuity under the previous pension framework. The IFoA has an opportunity to help lead the debate in this aspect of pension freedoms from the perspective of the actuarial profession and to help inform the public debate.

2. Objectives of report

This report has the following objectives:

- Review markets around the world
- Investigate the features of each market;
- Compare the markets to each other and the likely features of a secondary annuity market;
- Investigate lessons learned from different markets.

Out of scope

- Any considerations of any future changes in the taxation of pensions

3. Executive Summary

It is noted that there is the potential that the pensions reforms of April 2015 will probably reduce the size of the primary annuity market over time. If this happens, substantial investments in the secondary annuity market will be hard to secure. A functional secondary market in a reasonable timeframe is linked to the health of the primary market.

In addition, there is an international body of opinion that believes that most retirees are best served by securing a lifetime income at some point in their retirement. This is also likely to reduce future strain on the public purse. However there is a risk that a secondary annuity market would be a negative factor in this regard.

There is some evidence from Australia and the USA that if retirees are allowed to cash their pension plans at retirement, then there is “leakage” into purposes other than providing a retirement income, such as owner occupied homes and bequests (both of which are tax favoured). A debate is required regarding whether this is a desirable outcome or not.

It is recommended that, to support the primary annuity market:

1. It should be public policy that retirees are encouraged to take an annuity or other protection against longevity for a portion of their pension assets;
2. Pensions policy, tax policy¹ and benefits policy should encourage and not discourage the purchase of this protection;

The author of this paper has researched primary and secondary annuity (and other) markets around the world and the lessons that can be learned can be summarised as:

Legal & compliance

- Consideration should be given to ensuring that issuing insurance companies allow their annuities to be reassigned, in whole or in part;
- That issuing companies are allowed to bid for their own annuities;
- Disclosure of fees paid to introducers should be mandatory and consideration given to the disclosure of all fees to all parties involved;
- The tax position of buyers and sellers need to be clear;
- The impact on sellers means tested benefits should be clear;
- Simplified rules for the assignment of trivial annuities would save costs for all

Consumer protection

- Financial advice on whether to sell or not will be appropriate for most annuitants;
- Measures to encourage annuitants to take advice e.g. Tax relief on advice costs? Mandatory advice for most (larger) policies?
- Most annuitants are unlikely to be able to assess what price represents fair value and so professional advice would be required;
- Consumer protection of sellers requires legislation or a clear mandatory code of practice;

Effective operation of market

- A focus on minimising costs for buyers will facilitate a viable market for smaller and medium size annuities (e.g. underwriting and existence checking);
- For small annuities it's likely that the only bidder would be the issuing company;
- The issuing company bid would provide a floor for the annuity value, this would encourage fair pricing and a deeper market;
- The issuing company could be required to disclose the existence of a secondary market to annuitants;
- The reassignment of part of the income stream (e.g. 50% or the first 5 years) should be allowed, to give more flexibility to consumers, a deeper market, and allow issuing company ways to prove existence;

¹ See, for example (Gentry & Rothschild, 2010)

- A modest “retainer” fee, paid by purchaser to insured for existence information, should be allowed;
- Access to government General Register Office database of deaths with suitable controls, to reduce admin costs, and therefore facilitate a market for small policies;
- Careful analysis of the impact on, and behaviours of, sellers on means tested benefits is required;

Underwriting

- Underwriting will be required for most annuitants and this may be a shock to annuitants, many of whom will not have been underwritten at outset;
- Low underwriting costs will be key to creating a market which works for the majority of annuitants whom have small annuities;
- Lessons can be obtained from the enhanced annuity market where underwriting takes place;
- Data protection needs to be investigated to see if there are any issues in disclosing data to different parties to the transaction;
- Purchasers will worry about real or imagined anti-selection and this will impact prices;

Other key issues that have emerged during this research are:

- How to fund the set-up of the secondary market? Other secondary markets were slow to develop as set up relied on entrepreneurs exploiting the new markets and the incumbents did not get involved.

4. Summary of all markets

Largest Immediate annuities markets: UK, Canada, South Africa, Switzerland (IA & Deferred)

Medium Immediate Annuity markets: Ireland, USA, Sweden

Largest Deferred annuity market: Denmark

Mixed markets – Switzerland, Netherlands, and Belgium (fixed terms).

Source (Rusconi, 2008) fig 1.

4.1. Worldwide features

There are a few features from around the world that could inform the prospective secondary annuity market.

a. The “annuity puzzle”

It is well documented that, when given the choice of an annuity or cash, the take up of annuities is lower than would be expected from rational economic theory. (Rusconi, 2008) (Brown, 2007) (Cannon & Tonks, 2008) This is the so called “annuity puzzle”. The following reasons have been suggested:

- Poor consumer understanding of longevity risks, compound interest
- Inflexible product designs (I note high take up in Chile of 10-15 year guarantees (Rocha & Rudolph, 2010))
- Desire to leave a bequest (Piggott & Purcal, 2004)
- High state pensions and/or high mandatory annuitisation rates, obviating the need for top-ups
- A disincentive for annuity take up in the tax or benefits system
- Poor annuity rates currently
- Bad consumer press
- Indebted retirees paying off debts
- Problems of access and / or costs of getting advice
- Behavioural aspects at the point of purchase e.g. loss aversion, loss of control, overestimating small probabilities and underestimating large ones (Brown, 2007)

The annuity puzzle has repercussions for the effective operation of a secondary market in annuities:

- Due to the pensions freedoms of April 2015, the primary annuity market, which prior to the announcement of February 2014 had been expanding rapidly, may now go into decline, this will not encourage investment in a new secondary market;
- The existence of a secondary market may make many previous “forced purchasers” of annuities sell up, regardless of any advice, and regardless of the financial attractiveness of doing this;

It is also appropriate to consider whether the annuity puzzle could be affected by the existence of a secondary market. The secondary market would add an element of flexibility, and would also make some further bad press as inevitably someone makes a “poor” decision (as judged by the media or someone else) to sell their income stream.

The tax position of an annuitant “surrendering” is likely to be the same as those taking lump sums at retirement – i.e. taxed at marginal rates. Demand has apparently been strong to do this in personal pensions since the reforms in April 2015. It is proposed by the UK government that lump sums can be transferred tax free to drawdown, thus sellers can manage their tax bills if they so wish.

b. Optimal decumulation

There is much literature supporting the assertion that, for most retirees, it is important that some of the pension assets are annuitized (in some form) at some point, because retirees cannot be expected cover the longevity risk themselves. The ACFS Mercer report (Australian Centre for Financial Studies and Mercer, 2015) is an annual report attempts to rank countries pensions systems around the world and identify what is best practice. It scores more than 40 indicators measuring the adequacy of retirement benefits, the sustainability of those benefits over time; and the trust (integrity) in the pension system for each country.

The overall UK score fell from 67.6 in 2014 to 65.0 in 2015.

The Adequacy component fell from 69.8 to 65.0 due to the pensions freedoms.

The sustainability component was 51.3 (2014:52.4) and the integrity component 85.5 (2014:85.4)

In particular the report examines in Q6 of the Adequacy section, sets the ideal percentage of mandatory annuitisation at 60-80%. In the absence of any mandatory annuitisation, the question examines the incentives for annuitisation. The UK score dropped 6.5 points for Q6 from 10.0 in 2014 to 3.5 in the 2015 survey due to the expected impact on annuity take up of the April 2015 reforms. (scores out of 10)

For Q6 only the relevant scores out of 10 are: Australia 2.0, UK 3.5, and USA 0.0

The report can be found here: <http://www.globalpensionindex.com/>

There are various studies of what an optimal decumulation looks like, depending on various factors such as age, level of state pension, and overall wealth. For example (Dushi & Webb, 2004)

4.2. Australia

Australia has had a similar private pension arrangement as the UK post 2015 for some years. Retirees have been able to take lump sums or drawdown or buy an annuity. The major difference is that the Old Age pension is means tested.

In the past there were apparently disincentives to buying an annuity, but these have now been removed. But since most people continue their accumulation plan into retirement, drawing down from it, inertia means they stay put. This also means they stay in growth assets, which may not always be appropriate after retirement.

There is no secondary annuity market in Australia.

There is some data on what have been the outcomes of pensions freedoms in Australia and the impact of a proposed UK secondary annuity market in addition to pensions freedoms can be estimated.

The key outcomes of pensions freedoms in Australia are:

- Retirement option take-up (Pensions policy Institute, 2014)- lump sums c50%, drawdown c40%, annuity about 2 – 10%
- Majority of pensioner in drawdown withdraw less than they could (ARC Centre of Excellence in Population ageing research, 2015)
- A minority run out of money (10%) (ARC Centre of Excellence in Population ageing research, 2015)
- Product innovation in annuity market, with a product with liquidity in the first 15 years, aimed at boosting annuity take up (Challenger Life Company Limited, 2014) and a second with longevity pooling (Mercer, 2015) design to grab some of the drawdown money
- Means tested benefits encourage pensioners to concentrate wealth in assets treated favourably such as family home (ARC Centre of Excellence in Population ageing research, 2015)
- Concerns from market practitioners that pensioners are not getting adequate advice at retirement
- One market participant I spoke was afraid the liquidity allowed at retirement was fuelling debts pre-retirement.

Possible lessons for the secondary annuity market:

- The existence of a secondary market, thus giving some liquidity to the product, may encourage annuity take-up but tax treatment and interaction with means tested benefits is more important;
- It might be sensible to remove any barriers that exist to annuity providers paying a “surrender value” themselves. This would then provide a floor to the secondary market.
- Cash is king, and the lure of lump sums is powerful potentially leading to poor decisions
- Consumers unable to access or unwilling to pay for advice
- Impact on means tested benefits of selling annuity should be clear
- Danger of retirement money leaking away from providing money in retirement to bequests, housing market etc.

There has, in the past been a traded endowment market and life settlements (whole of life) secondary market in Australia. It appears there is only one market maker left www.austpolicytraders.co.au as there is now no primary market in these products. There are two points of relevance for the UK secondary annuity markets:

1. If the primary market collapses, the secondary market will as well, after a delay. Since arguably this has already happened in the UK primary annuity market, there may be reluctance to invest in infrastructure if the market is only going to last a few years

2. Under the Australian privacy act, the Life Company and the broker are prohibited from passing on personal information about the insured to the investor (Australian Policy Traders, n.d.). Hence it is impossible for the investor to know if the insured has died, unless the family tell them. So it will be important measures to be put in place to allow investors to find out what has happened to the original annuitant.

4.3. USA

The US pensions market decumulation is dominated by the Drawdown approach, with less than 2% of retirees taking an annuity (Pensions policy Institute, 2014). However, unlike Australians, it is estimated that around half of Americans will exhaust their pension pot before death (Pensions policy Institute, 2014)

In the USA there is a thriving secondary market in **structured settlements** (temporary income awarded as a result of an accident) and Lottery wins (sometimes paid as an income for a few years). It has been suggested to me that it is possible to “sell” the first 5 years’ worth of a lifetime annuity in some states but generally state regulators are not keen (Mercado, 2010).

The features of these markets are:

- Structured settlements are awarded by a court, and the court has to agree to any sale
- Much due diligence required in order to make a transfer of ownership of the income stream legally binding on all parties
- Specialist advice required
- Hence, very expensive to do
- For the settlements which cease on the death of the “annuitant” life cover of an appropriate amount is taken out to protect the purchaser from a large loss, if death were to occur.

There is also a large **Life Settlements** (secondary whole of life) market. The market took a long time to develop mainly due to obstruction by insurers, who were (are) against this market. The perception of one of the market participants I spoke to was that this was because there was a loss in surrender profits by insurers and in the end this would impact new business pricing. However it is very popular with consumers.

On the Websites of the intermediaries (Pacific Structured assets, n.d.) (Factor financial, n.d.) (J.G.Wentworh, n.d.) (Peachtree Financial solutions, n.d.) that deal with this business the need to take professional advice is highlighted prominently as these appear to be sold on an execution only basis.

There are also very many middlemen involved in this, taking undeclared fees and this may be resulting in a poor deal for sellers. Also online trading is not allowed increasing the administration costs. The result is that the market only operates for large policies. This is a problem for buyers as the experience is rather lumpy. Small sellers are shut out of the market.

For the purchasers of Life Settlements this market is a pure longevity bet, where the assured has (potentially) more information than the purchasers. So underwriting is done carefully. Purchasers are often “professional investors” but marketing to retail investors still takes place.

Access to medical records is done by a HIPAA release being signed by the life assured, which also allows access to medical records after the point of sale.

The purchaser needs to find out if the assured has died, and there are multiple methods in use. Including the following:

- Asking the doctor periodically under the HIPAA release
- Paying the insured a small sum periodically to return the certificate of existence
- Using a tracing agency to scan various databases
- Scanning the obituary columns
- Using the (previously nationwide) database of deaths

There has been some bad press in this market relating to the illegal STOLI (“Stranger-Originated Life Insurance”) market. This is where there is no insurable interest at outset.

There has also been mandatory price “floors” in some states to protect consumers from predatory pricing. (Bhattacharya, et al., 2004)

Possible lessons from the US market, for the secondary annuities market in the UK:

- Important that costs are minimised otherwise the market will only be for very large policies;
- Transparency of fees important, especially as there may be no “floor” of a surrender value
- A cheap way of ensuring the annuitant is alive needs to be found to keep costs down
- Consideration of a mandatory register of deaths to reduce costs of administration or access to existing arrangements

4.4. UK

The UK has had a traded endowment market since the early 1990s. However since a lot of the policies were issued for a 25 year term and the big sales were in the 1980s the supply has now mostly dried up. Also with profit bonus rates have fallen over the years reducing the returns and surrender values have improved for various reasons.

In between these times the market has been quite buoyant, especially after Life companies were required to tell surrendering policyholders that there was a secondary market option (PIA, 2001) Access to the secondary market was improved by technology, and this brought more transparency as well. The TEP exchange, an online platform, worked well for a few years, but with the cooling of the market, the TEP exchange was closed in 2015.

TEPs are generally sold on an “execution only” basis, which brings buyers some challenges in ensuring that sellers are appropriately informed and not misled or enticed to sell. Consequently most policies were purchased by professional investors and went into funds.

TEPs were/are also sold to private buyers as low risk investments, which in some senses they are. However as for annuities, what is a “good” price to pay is difficult to assess for the average retail investor.

TEPs are mainly small policies and underwriting isn't such an important issue as these are investment contracts. Hence for buyers, they could be bought in volume which provided a stable income stream.

Relevant lessons from the UK TEP market:

- If it could be achieved at suitable cost, a deeper market would emerge if smaller policies could be traded
- If insurers were allowed to bid for their own annuities, they could be required to tell policyholders the secondary market exists.
- Need to ensure annuitants and buyers are properly advised

4.5. Germany

There is a small secondary market in Life assurance contracts in Germany. (BVZL, n.d.)

Members of the BVZL (International secondary markets for life assurance) agree to apply quality standards which "ensure and active consumer protection".

Sellers usually keep some premium – free death protection after the sale, thus maintaining an interest in the policy and maintaining communications with the insurer.

There has been some bad practice in the market historically from non BVZL organisations, with high fees being charged, lump sums being paid in instalments, and promises of high yields to buyers. The regulator BaFin has had to take some action against some firms.

BVZL recommend, for example that: sellers use BVZL members; that due diligence on the purchaser is done; sellers reject being paid in instalments; sellers consider the alternative of a policy loan; and purchasers are sceptical of high returns.

4.6. Other Countries

In some countries there was evidence of demand for secondary Life settlements by consumers (e.g. Canada) but opposition by insurers and regulators mean it is not allowed.

Other markets I have looked at and found no significant secondary markets are:

- Netherlands
- South Africa (annuity sales banned)
- Canada (Life settlements only allowed in 4 provinces)
- Switzerland
- Ireland
- Denmark (high surrender values)
- Sweden

6. Relevant features of pensions market or consumers in UK

It is noted that, with the April 2015 reforms already enacted, that annuitisation is likely to fall substantially, and it is expected that anti-selection² of annuity purchasers will increase. This may have the following knock on impacts:

- Thus it is to be expected, that underwriters in the proposed secondary market may well distinguish between pre April 2015 (“compulsory”) and post April 2015 (“voluntary”) annuity purchasers.
- The size of the primary annuity market will decline over time, which may inhibit investment in the secondary market

It is noted that in Australia pensions money has leaked into tax favoured investments, in particular peoples own home. Following the reforms in April 2015 this is likely to happen in the UK as well, further fuelling residential property prices. This could be exacerbated by a secondary annuity market. Some government policy initiatives may be appropriate to mitigate this impact if this was thought to be undesirable.

It is clear that many UK consumers have a major need for, or desire for, cash lump sums. This shows in the near universal take-up of the 25% tax free lump sum from Defined Benefit schemes, even when the terms of commutation are financially not attractive (even after allowing for the lack of tax) (Womack, 2013), and also the outflow of funds from personal pensions since April 2015. This may be linked to the indebtedness of the population, where persons in debt value highly cash lump sums. Demand from prospective annuitants to sell is likely to be high.

Average annuities in force are small, around £1,700 p.a.³ for one major annuity provider and hence it is important, for creating a deep market, that these are capable of being traded.

It will also be a public relations disaster if it transpires that only large policies (i.e. from wealthy people) are capable of being traded.

Trivial commutation

It is also noted that due the complexity and rules changing over time, there will be many small annuitants who were not give the option of commuting their annuity for cash at retirement. If they were retiring today, they could take the whole amount as a lump sum. These annuities of a few hundred pounds per annum or less are very expensive for insurers to administer and they would likely welcome the opportunity to relieve themselves of this expense. It seems reasonable to have a simplified approach to these, such as no advice requirement.

Behavioural aspects

It is appropriate to consider how annuitants behaviours might change if their annuities could be assigned in a secondary market. I have already mentioned there could be a positive impact on annuity take-up in the primary market as it may improve perceived liquidity.

² Anti-selection is where purchasers of annuities do so only if they expect better than average longevity thus raising the expected costs of the insurance company providing the annuity

³ Legal and General 2014 PRA returns form 51

(Hu & Scott, 2007) attempts to explain the annuity puzzle by “Mental accounting” theory and “Cumulative prospect” theory (CPT). The first frames the annuity purchase decision as a risky gamble: “How many years do I have to live to get my money back?” instead of a risk reduction measure. CPT is where gains or losses are evaluated relative to a reference point, which in the case of the purchase decision is do nothing (do not annuitise). Adding liquidity through a secondary market seems to add nothing to the mental accounting view. But under CPT the secondary market does, at least allow an individual to change his or her mind. Also, for a current annuitant, the reference point is the annuity they already have which suggests people will assess the value of the potential lump sum against the value they place on the income that they have been receiving. The perception of value of a regular income to someone receiving it already may well be different from their perception before purchasing.

Anecdotally in the Australian market the relationship between appetite for cash and debt levels and desire to leave a bequest may be important. However, the lump sum available for these things will not be known by the annuitant until after underwriting, and the amount offered may be disappointing especially if the annuitant is in poor health.

In the Australian context, one of my sources for this report speculated that debts were being taken on during the working life because a lump sum is available on retirement to pay off those debts. If this is happening, it does raise the possibility that annuitants may take on further debt, knowing that a lump sum would be available later if required.

6.1. How to create a deep, competitive market

This report shows how, to create a deep and competitive market, giving good value for annuitants large and small, it is important the market is efficient with low costs.

How could this be achieved?

Commentators on the secondary market have proposed a number of things:

- An online portal / clearing house set up on an industry wide basis
- Creation of a death register

In addition, the author believes, the following would assist:

- A focus on facilitating low costs of doing business so that the market is viable for small policies;
- Using a common application form across the industry, for example like the Common Quotation Form (CQF)⁴ used in the enhanced annuity market;
- Access to government data on deaths;
- Allowing providers to recapture their own annuities;
- Leveraging on the platforms already in use in the market;
- Being clear on when advice is compulsory and when not;
- Special (simplified) rules for trivial annuities;

⁴ <https://www.partnership.co.uk/dmsdocument/156>

- Insurers to be required to allow their policies to be assigned (but not required to bid on them);
- Ensuring that advisors are attracted to the market, and are not put off by the risk of future mis-selling claims. Their role and liability needs to be clear;
- Ensuring that annuitants take appropriate advice. Advice would be appropriate for the majority of annuitants. This could be by compulsion or by encouragement.
- There would also be advice issues if a retail market is allowed in buying these income streams.

References

ARC Centre of Excellence in Population ageing research, 2015. *A longitudinal Study of Income, Assets and decumulation*, Sydney: CEPAR.

Australian Centre for Financial Studies and Mercer, 2015. *Melbourne Mercer Global Pension Index*. [Online]

Available at: <http://www.globalpensionindex.com/>
[Accessed 24 February 2016].

Australian Policy Traders, n.d. *Questions and answers, question 17*. [Online]

Available at: http://www.austpolicytraders.com.au/questions_answers.php#3
[Accessed 24 February 2016].

Brown, J. R., 2007. *NBER working paper 2007*, Cambridge, Massachusetts: National bureau of economic research.

BVZL, n.d. *Secondary markets*. [Online]

Available at: http://www.bvzl.de/index.php?language=en&main_id=15&sub_id=57
[Accessed 25 February 2016].

Challenger Life Company Limited, 2014. *Guaranteed annuity*. [Online]

Available at: http://www.challenger.com.au/funds/PDS/GA_Lifetime_PDS.pdf
[Accessed 24 February 2016].

Factor financial, n.d. *Homepage*. [Online]

Available at: <http://factorfinancial.com/>
[Accessed 24 February 2016].

HM Treasury, Department for Work and Pensions and others, 2015. *Creating a secondary annuity market: call for evidence*. [Online]

Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/413764/Creating_a_secondary_annuity_market_web_file.pdf
[Accessed 8 February 2016].

HM Treasury, Department for Work and Pensions and others, 2015. *Creating a secondary annuity market: call for evidence*. [Online]

Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485286/creating_a_secondary_annuity_market_response.pdf
[Accessed 8 February 2016].

J.G.Wentworth, n.d. *Homepage*. [Online]

Available at: <https://www.jgwentworth.com/en/resources/annuity-faqs>
[Accessed 24 February 2016].

Jay Bhattacharya, D. G. a. N. S., 2004. Price regulation in secondary markets. *Journal of Risk and Insurance*, 71(4), pp. 643-675.

Mercado, D., 2010. *Investment week - annuities come under pressure*. [Online]

Available at:

<http://www.investmentnews.com/article/20100228/REG/302289992?CSFlag=167uq79f649a7b2p2dr655cuae>

[Accessed 24 February 2016].

Mercer, 2015. *Mercer Lifetimeplus*. [Online]

Available at: <http://www.mercer.com.au/services/retirement/lifetimeplus.html>

[Accessed 24 February 2016].

Pacific Structured assets, n.d. *Secondary market annuities*. [Online]

Available at: <http://www.pacassets.com/acquire-secondary-market-annuities-sma/>

[Accessed 24 February 2016].

Peachtree Financial solutions, n.d. *Our Solutions*. [Online]

Available at: <http://www.peachtreefinancial.com/our-solutions/annuities.aspx>

[Accessed 24 February 2016].

Pensions policy Institute, 2014. *PPI Briefing note Number 66*, London: PPI.

Piggott, S. P. & J., 2004. *Explaining low annuity demand: an optimal portfolio application to Japan*, Sydney: University of New South Wales.

Roberto Rocha, H. P. R., 2010. *A summary and update of developing annuities markets*, s.l.: The World Bank.

Rothschild, W. M. G. a. C. G., 2010. Enhancing retirement security through tax code: The Efficacy of Tax-based subsidies in Life annuity markets. *Journal of Pension Economics and Finance*, 9(02), pp. 185-218.

Rusconi, R., 2008. *OECD Working Paper on Insurance and Private Pensions, No 24*, Paris: OECD Publishing.

Scott, W.-Y. H. a. J. S., 2007. Behavioral Obstacles in the Annuity Market. *Financial analysts Journal*, 63(6).

Tonks, E. C. a. I., 2008. *Annuity Markets*. Oxford: Oxford University Press.

Webb, I. D. a. A., 2004. Household annuitization decisions: simulations and empirical analyses. *Journal on Pension Economics and Finance*, 3(02), pp. 109-143.

Womack, S., 2013. *This is Money Pensions and Retirement*. [Online]

Available at: <http://www.thisismoney.co.uk/money/pensions/article-2319419/Why-lump-sums-dont-add-final-salary-pensions.html>

[Accessed 26 February 2016].

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