

Article

# Nudges and Networks: How to Use Behavioural Economics to Improve the Life Cycle Savings-Consumption Balance

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**Abstract:** Many people find it difficult to start and maintain a retirement savings plan. We show how nudges can be used both to encourage people to save enough to provide an acceptable standard of living in retirement and to draw down their accumulated pension fund to maximize retirement spending, without the risk of either running out of money or leaving unintended bequests. Networks can help too, particularly employer-based networks. However, the nudges and networks are more likely to be effective if they have legislative backing and support.

**Keywords:** nudges; networks; behavioural economics; life cycle savings-consumption; Save More Tomorrow (SMART) plans; Spend Optimally Throughout Retirement (SPEEDOMETER) plans

**JEL Classification:** D91



**Citation:** Blake, David. 2022. Nudges and Networks: How to Use Behavioural Economics to Improve the Life Cycle Savings-Consumption Balance. *Journal of Risk and Financial Management* 15: 217. <https://doi.org/10.3390/jrfm15050217>

Academic Editors: Robert Hudson and Mark Harris

Received: 28 February 2022

Accepted: 10 May 2022

Published: 13 May 2022

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## 1. Introduction

Most people are not rational life cycle financial planners. They face behavioural barriers and are subject to behavioural biases which prevent them behaving optimally over their lifetimes. Behavioural economics can help overcome these barriers. This has been confirmed in the accumulation phase of the life cycle when people are saving up for retirement: SMART (Save More Tomorrow) plans (Thaler and Benartzi 2004) have proved to be very successful in increasing retirement savings in the US and UK, for example. We show that the barriers and biases that people face in the decumulation phase—when people have retired and they are drawing down their accumulated assets—can be overcome if they use SPEEDOMETER (Spend Optimally Throughout Retirement) plans (Blake and Boardman 2013). Both SMART plans and SPEEDOMETER plans rely on nudges to move people towards behaving optimally. Networks can help too, particularly employer-based networks. One potentially interesting way to implement these plans is to use a life-cycle fund as part of the employer's corporate platform. However, the nudges and networks are more likely to be effective if they have legislative backing and support.

The purpose of the paper is to provide a brief summary of the behavioural issues involved in life cycle financial planning and potential solutions. In doing so, it integrates three strands of the extant literature: the nudges for overcoming the behavioural barriers to accumulating adequate retirement savings; the nudges for overcoming the behavioural barriers to decumulating retirement savings in a way that avoids both spending these savings too quickly and spending them too slowly; and the support that networks can offer to reinforce these nudges. The paper should be particularly useful for pension plan sponsors and designers, financial advisers and legislators.

The outline of the paper is as follows. Section 2 explains why most people are not rational life cycle financial planners. Section 3 reviews the key behavioural barriers and biases that people face. Section 4 discusses the plans that can help to overcome these barriers and biases. Section 5 explains how networks can help, while Section 6 describes one way to implement the plans. Section 7 explains the important role that legislation can play to support the plans, and Section 8 concludes.

## 2. Most People Are Not Rational Life Cycle Financial Planners

A rational life cycle financial plan requires people to accurately forecast: total career income, total available retirement resources, asset returns, interest rates, tax rates, inflation, their longevity or life expectancy, and minimum essential expenditure over the lifecycle, including medical and other health expenses. Most people do not have the skills to do this—in fact, nobody does. The plan would also require people to commit to start and maintain a very long-term savings and investment programme and revise it as circumstances change, such as when someone experiences a period of unemployment or ill-health. Many people do not have the necessary commitment to do this either. This is because of behavioural barriers and biases.

We need to recognize that, in reality, individual decisions are subject to:

- **Bounded rationality:** Certain types of problems are too complex for individuals to solve on their own. An optimal life-cycle financial plan is a clear example of this. One reason for this is that some individuals are subject to **exponential growth (EG) bias**—the failure to understand compounding. The cognitive source of EG bias appears to be a strong tendency for the brain to linearize functions when extrapolating or forecasting (Stango and Zinman 2009).

Another reason is that many people have a poor sense of the ‘time dimension’ of their lives. Such people can think about events that are coming up in a few weeks or months and plan for these, such as next summer’s holiday. But time horizons such as 5 years, 10 years, 20 years or 40 years ahead are all lumped together in some nebulous distant place called the ‘future’. Such people find it impossible to imagine themselves being old and financially preparing for this eventuality. This can lead to **present bias**—the tendency to value the present over the future (Goda et al. 2019).<sup>1</sup>

Present bias is consistent with individuals valuing future consumption using **hyperbolic discounting**—which results in value declining at a more rapid rate in the short term than the long term. As a result, individuals with present-biased preferences are **time inconsistent** and can experience **preference reversals**—they value one apple now over two tomorrow,<sup>2</sup> for example, but prefer two apples in 51 days over one apple in 50 days<sup>3</sup> (Thaler 1981). In other words, they exhibit (apparent) long-term patience, but (definite) short-term impatience. All this implies that future consumption is valued much less highly than present consumption and this discourages savings.

- **Bounded self-control:** Individuals lack the willpower to start and maintain plans, especially long-term plans.

As a result of these limits on optimizing behaviour, we need to change our understanding of individual economic decision making, especially long-term savings decisions, such as those involved in accumulating and decumulating assets in a pension plan.

## 3. Identifying Behavioural Barriers and Biases

There are behavioural barriers and biases during the pre-retirement phase and both at- and post-retirement. We consider these in turn.

### 3.1. Pre-Retirement Behavioural Barriers and Biases

The first set of barriers and biases relates to the decision about starting to save. **Procrastination** and **inertia** are bad for saving. Employees fail to join pension plans where they are required to opt in. Saving for retirement means reducing consumption now in order to have a comfortable income in the future. This requires **self-control** which is not always easy. Some people find it as hard to save as others do to lose weight or give up smoking.

The next set concerns the decision about how much to save. It is difficult to know how much to save for retirement. Plan members may be **anchored** by irrelevant information. Suppose we know the default contribution rate in the pension plan is 5% of the member’s pay. Presumably that must be the right rate? Not necessarily if the pension plan is

poorly designed. A rational lifecycle financial planner would be able to work out that the appropriate contribution rate would be nearer 15% if an acceptable standard of living is required in retirement—similar to the one enjoyed just prior to retirement. This shows how important it is for each of the default components of a pension plan to be appropriately designed.

Then there is the possibility of **cognitive dissonance**. People can think about the same issue in contradictory terms in different situations: ‘I know I should be saving 15% of my income if I want a good pension’, but at the same time ‘I think I will be able to live on much less when I retire, so I do not need to save as much as I thought, which means I can spend more today’.

The final set relates to what assets to invest in. Most defined contribution (DC) pension plan members<sup>4</sup> do not want to make an active decision about what type of funds to invest in.

There are many behavioural biases relevant to investment. Many people do not like taking investment decisions because they might later **regret** the decision that they make. This would especially be the case if the investment lost money, since people tend to be prone to **loss aversion**. Often people use **mental accounting** to keep track of their investments. This means that they treat some assets as being currently accessible and others as being accessible only in the future. The separate mental accounts are effectively treated as non-fungible, implying that the marginal propensity to consume from the separate accounts is different; this is sub-optimal. By contrast, a rational life-cycle financial planner would treat all assets holistically and hence have a single marginal propensity to consume from total wealth.<sup>5</sup>

The way an investment proposition is **framed** can have an enormous influence on decisions made by most people, whereas it does not affect a rational life-cycle financial planner. To illustrate, if most people are told ‘you are aware equities are risky’, this is likely to have a negative influence on the decision to hold equities in long-term investment portfolios, since most people do not like to take risks. It leads to a strategy of ‘reckless conservatism’ with investments held in low risk, but low yielding bonds. On the other hand, if the conversation begins ‘you are aware that equities tend to generate higher returns in the long run than more conservative assets such as bonds, despite some short-term volatility’, then there is some chance that a suitably balanced and sensible portfolio might eventually be agreed.

Another issue is **choice overload/anxiety** which is a common feature of complex problems. Having too many investment funds from which to choose can mean no decision at all is made. Individuals’ minds can become frozen like rabbits in a headlight. When faced with difficult choices, individuals often employ **simplifying heuristics** (simple rules of thumb), such as ‘choose the default option’ because someone else must have thought that it was good idea. Since we know that this is common practice, again it shows how important the good design of the default is. A related practice is **herding**: many people just follow the herd wherever the herd is heading on the presumption that someone in the herd must know that it is the right thing to do.

Another behavioural trait is **weak investment preferences**: people do not have strong views on what assets to invest in. This arises, in part, because investment is a genuinely complex problem and, in part, because most people do not understand the issues and risks involved. It means that individuals can be easily led. It also means that the design of the investment choice menu can influence outcomes. Experiments have shown that with a list of five funds, many people will choose the first fund or the middle fund however the funds are listed, whether in order of increasing risk, decreasing risk, or randomly.

### 3.2. At- and Post-Retirement Behavioural Barriers

When it comes to the retirement decision, again there are behavioural barriers and biases. One that we have seen earlier is **time inconsistency**. When you are young, you believe that you will be able and willing to work longer if necessary to compensate for inadequate pension savings, even if someone tells you that you will probably not feel

like that when you are older. When you are old, you are very likely to regret not saving enough when you were younger, because you do after all want to retire earlier. This is another example of the poor understanding of the time dimension of a person’s life. To illustrate this, a survey of 1300 UK women aged over 45 by the older worker advice website Workingwise.co.uk found that 53% feared that they will have to keep working beyond the state pension age in order to make ends meet. Around 64% had stopped making pension contributions when they took career breaks to bring up children or to care for relatives and that this was responsible for the reduction in pension payments.<sup>6</sup>

What should be the optimal retirement income strategy? Effective retirement saving needs an optimal decumulation strategy as well as an optimal accumulation strategy. It needs to deal with both *Human Spenders*—people who run down their resources too quickly in retirement—and *Human Hoarders* or *Squirrels*—people who spend too slowly in retirement or who wish to guarantee an inheritance for their children. A properly designed retirement income strategy can help both types increase their lifetime welfare.

Many people dislike the idea of buying an annuity to hedge their individual longevity risk, the uncertainty attached to individual lifetimes. Annuities are perceived as poor value and there are two key reasons for this.

First, individuals underestimate how long they (and their partner) are likely to live. A December 2021 survey by Club Vita of 3000 workers, aged 40–60, from the US, Canada and the UK found that males underestimated their life expectancy<sup>7</sup> by 2.5 years and females by 6.1 years. Club Vita also found that ‘Those who are least financially prepared for retirement also seem to be the people who are worst at estimating how long they will live in retirement. This could create a real polarizing effect for retirement planning’ (reported in Bell 2022).

Second, in addition to underestimating their life expectancy, individuals have a very poor understanding of the potential range of actual lifetimes around their expected life time. Figure 1 shows the expected distribution of the death ages of UK males aged 65 and 85, respectively. In both cases, there is a wide range of possible death ages around life expectancy. In the case of 65-year old males, 25% will die before the age of 81, but 25% will live beyond 93. For those males who survive to 85, one-third will reach 93 and 5% will reach 100.

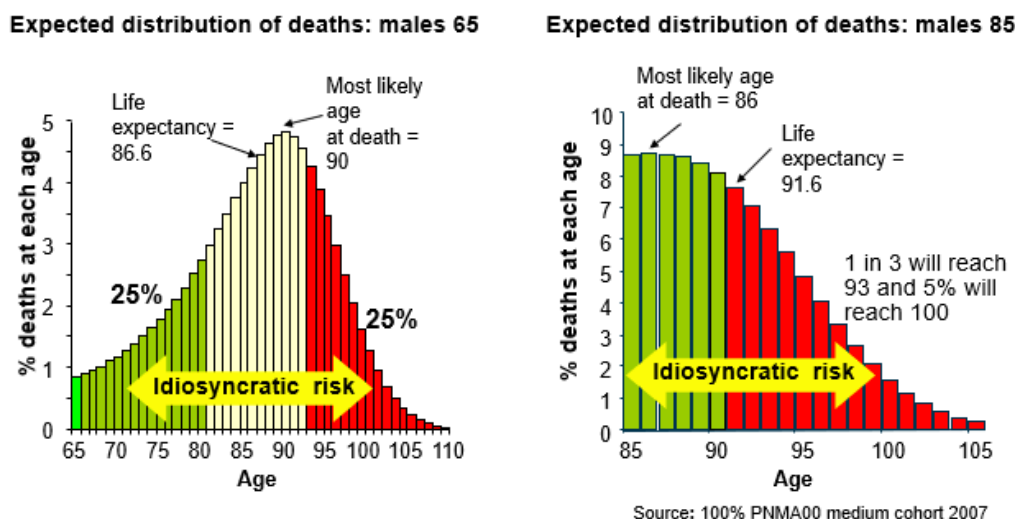


Figure 1. Expected distribution of death ages.

Both of these findings are potentially disastrous for people who refuse to buy an annuity and, hence, bear their own longevity risk—the risk of either running out of resources before they die or leaving as bequests much more than they intended. The biggest risk, of course, is ending up in extreme poverty in old age.

There are many behavioural biases relevant to decumulation. First, there is the **illusion of control**: people like to feel in control of their capital but annuitization leads to an

apparent ‘loss of control’ since they have ‘given away’ their capital to an annuity provider. Second, there is the issue of **framing**. Studies show that when expressed using a ‘consumption’ frame, annuities are regarded as desirable: you will have a regular stream of income to support your standard of living in retirement for however long you live. However, expressed using an ‘investment’ frame, annuities are regarded as risky: you could use your capital to buy an annuity and you could die the next day and your investment would be completely lost.

Related to this last point is **regret** and **loss aversion**. Many people feel that annuities are a gamble. However, the probability of dying very soon after purchasing an annuity is very low—less than 1% for UK males at age 65, according to Figure 1—but this probability is likely to be overestimated.<sup>8</sup> So the ‘loss’ from buying an annuity is likely to be perceived to be high: dying AND losing all your capital too! Conversely, the significant probability of out-living one’s resources if one doesn’t annuitize—the probability of living beyond life expectancy is around 50% for 65-year old males—is underestimated.<sup>9</sup> So the ‘gain’ from annuitizing is perceived to be low. As a consequence of this, the ‘gain’ from annuitizing will give a small welfare (or utility) benefit, while the ‘loss’ from dying early may have a large welfare loss. Accordingly, people feel that they will be better off by not annuitizing and hence unwisely end up assuming their own individual longevity risk.

#### 4. How Behavioural Economics Can Help Overcome Barriers and Biases

Behavioural economics combines economics, finance, psychology and sociology. It recognizes that individuals do try to behave optimally by making decisions that maximize their personal welfare, but that there are limits to the extent they can do this. Individuals are *Humans* not *Econs* (using the terminology of Thaler and Sunstein (2008)’s *Nudge*) and need **nudging** towards optimal solutions.

##### 4.1. Overcoming Pre-Retirement Barriers with SMART Plans

When it comes to starting to save, behavioural traits have been exploited to design pension schemes that increase long-term pension savings. The classic example is the Save More Tomorrow (SMART) plan of Thaler and Benartzi (2004). The plan member agrees to start or increase savings on a regular basis, not now, but on a future significant date, such as the date of the next pay rise.

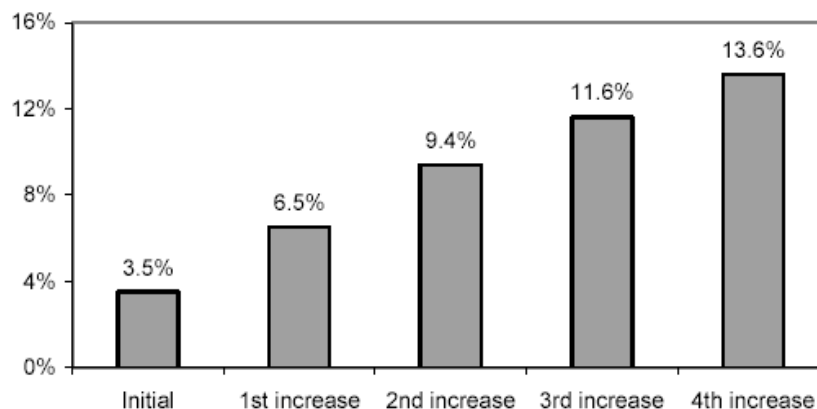
SMART plans deal with a number of behavioural traits. They accept that individuals have **self-control problems** and would benefit from using **pre-commitment devices**. These include: **auto-enrolment with payroll deduction**—individuals are automatically enrolled into the plan (which is usually associated with a pension plan at the place where these individuals work) and have to make the active decision to withdraw from the plan; **auto-escalation**—the contribution rate starts low, but contributions are automatically increased each year until an appropriate total contribution rate is being made; **withdrawal restrictions**—the plan creates psychological and financial barriers to accessing the funds before retirement.

An important behavioural trait that SMART plans exploit is **money illusion**—the tendency of people to think in nominal rather than real terms. Thaler and Benartzi (2004) showed that if the initial contribution into the plan equalled the amount of and coincided with the date of a pay rise, then there would be no reduction in take-home pay and this would make joining the plan more palatable. Figure 2 shows that, in companies with which Thaler and Benartzi worked to demonstrate proof of concept, the average contribution rate increased from an initial 3.5% to 13.6% after four years.

The plans exploit **inertia**, since once signed up, workers typically do not cancel the payroll deduction facility—as Figure 2 confirms. They also use **herding behaviour** constructively: a worker is more likely to join if other workers are joining.

In terms of how much to save, SMART plans recognize the importance of an appropriate minimum default contribution rate—one that is large enough to be meaningful, but not large enough to put people off. Further, contribution matching by employers—

which is also encouraged by those designing SMART plans—provides a powerful incentive for members to choose a higher contribution rate for themselves so that the combined employee-employer contribution rate is nearer to the optimal rate of around 15%. Once enrolled, members tend not to alter the contribution rate unless **auto-escalation** is in place—Figure 2 illustrates this. Again, **inertia** is exploited positively.



**Figure 2.** Contribution rates in SMART plans. Source: [Thaler and Benartzi \(2004\)](#).

When it comes to what to invest in, SMART plans deal with **choice overload/anxiety** by having only a small number of investment funds to cover the range of different risk tolerances that individuals have. It is much more important for individuals to know what a particular investment fund does—in terms of, say, expected return and volatility of returns—than what its asset mix is, the knowledge of which will mean little to most people.

To deal with **simplifying heuristics**, it is important to have a well-designed and low-cost default investment fund which utilizes a lifecycle or lifestyle investment strategy and automatically de-risks the pension fund<sup>10</sup> in the lead up to retirement. More than 90% of plan members choose their plan’s default investment fund whether it is suitable or not.<sup>11</sup>

It is possible to have a more sophisticated and flexible approach to investing using ‘smart default’ investment funds. [Blake et al. \(2021\)](#) have recently proposed a methodology for designing these, based on the observable characteristics of scheme members (e.g., age, gender, educational attainment, financial literacy, risk attitude, risk capacity, pay, job type, health and marital status) who are then guided or nudged using an appropriate choice architecture, such as checklists, to determine whether they have an interest in, say, ethical or Shariah-compliant investing.

#### 4.2. Overcoming At- and Post-Retirement Barriers with SPEEDOMETER Plans

One of the most important requirements is to overcome the **illusion of control** which prevents people annuitizing optimally. ‘All-or-nothing’ annuitization is likely to be sub-optimal as well as undesirable. Phased annuitization—the gradual purchase of annuities over time—might be a better strategy. This deals with: interest rate risk by hedging the interest rate cycle;<sup>12</sup> the possibility that investment returns might be higher in future; the possibility that mortality rates might be higher in future; and the possibility that the individual will enjoy a long period of retirement and will not want to be locked into a relatively low-yielding if safe bond-like investment—which is what a fixed-income annuity is—over an extended period.

The next requirement is to overcome **regret or loss aversion**. Any pooling of mortality needs to be perceived to be fair by the public. Currently, this is not true. At younger ages, the annuity mortality cross-subsidy (also called the survivor credit or mortality premium) gives poor value to those dying early. An annuity is a risk-sharing device in which those who die early cross-subsidize those who live a long time.<sup>13</sup> This is *ex-ante* fair if all members of the pool of annuitants have a similar life expectancy when the annuity is purchased.

*Ex-post*, some will be unlucky and die before their life expectancy, while others will be lucky and die after—as Figure 1 showed—but that is just the luck of the draw.

One solution to this problem is a money-back or capital-protected annuity. Figure 3 shows an example of this where if death occurs before age 80, the annuitant's estate receives, as a death benefit, the original purchase price less the accumulated income paid prior to death. Another solution is an impaired life annuity for those who have a reduced life expectancy on account of, say, a terminal illness, like cancer, or a lifestyle choice, such as smoking.

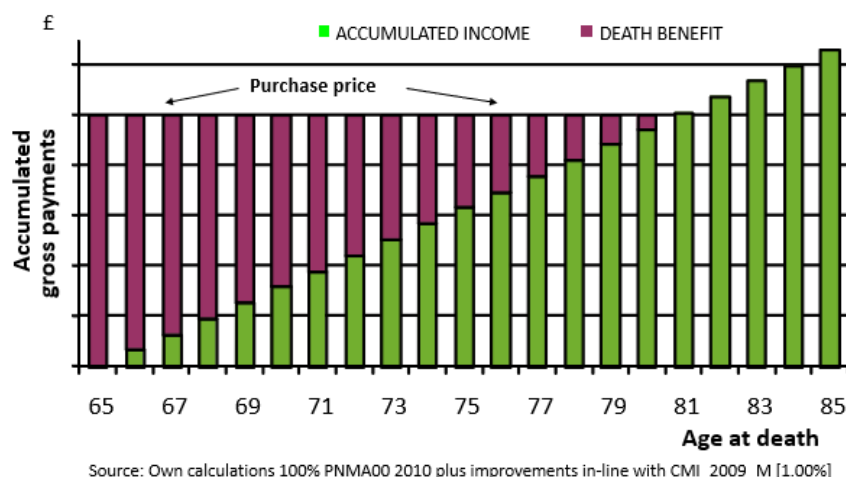
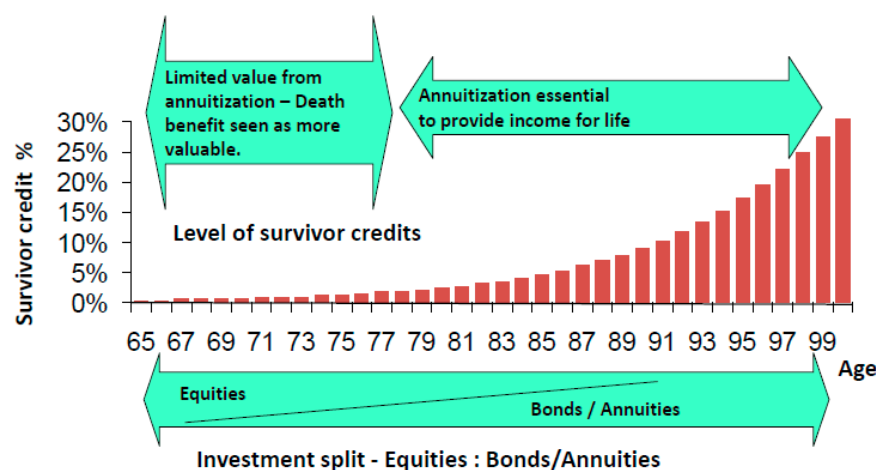


Figure 3. Death benefits with a money-back annuity.

So, it is not a question of IF but WHEN pensioners should annuitize. Figure 4 can be used to explain the optimal annuitization strategy as part of the optimal post-retirement investment strategy. The equity risk premium—the excess return on equities over the return on risk-free bonds—is around 5.5% in the US.<sup>14</sup> This compensates equity investors for the additional volatility of equity returns compared with risk-free bonds. Figure 4 shows that, for males in their 60s and 70s, the survival credit—the excess return on annuities over the return on risk-free bonds—is below the equity risk premium. So long as the equity risk premium exceeds the survival credit, retaining some equity investments in the pension fund after retirement allows the fund to continue benefiting from this premium. However, Figure 4 also shows that the survival credit increases every year<sup>15</sup> and, by the early 80s, the return on annuities exceeds that on equities. The optimal investment strategy—as the bar at the bottom of Figure 4 indicates—is to gradually reduce the weight in equities and increase the weight in bonds and annuities. The annuities provide an income for life. The bonds also have a place in a post-retirement investment strategy, despite having a lower return than either equities or annuities, because they can be sold,<sup>16</sup> if necessary, to pay for contingencies such as unexpectedly large repair bills.

To deal with **framing**, the discussion should be posed in a way that generates the optimal outcome for most people. Talk about the income stream ‘generated’ by the annuity rather than the ‘loss’ of the lump sum. Explain the annuity in a ‘consumption frame’—which makes an annuity look safe—rather than an ‘investment frame’—which makes an annuity look risky. Emphasize the risk of living in poverty in old age, rather than giving up the lump sum. Studies show that people with annuities are happier: they can spend their annuity payments knowing they have full longevity risk protection (Panis 2004). Show a series of photos of decreasing bundles of goods that can be purchased due to inflation.

Blake and Boardman (2013) introduced SPEEDOMETER retirement expenditure plans as the counterpart in the decumulation phase to SMART plans in the accumulation phase. SPEEDOMETER stands for ‘Spending Optimally Throughout Retirement’.<sup>17</sup> The plan has five components.



Source: Own analysis; 100% PNMA00 2010 plus improvements in-line with CMI\_2009\_M [1.00%]; Survivor credit =  $qx / (1 - qx)$

Figure 4. When to annuitize.

First, make a plan. This can be done either by using an on-line or telephone-based service providing generic financial advice<sup>18</sup> or, if wealth permits, involving a financial adviser whose role is to assist with making and implementing the plan and conducting annual reviews.

Second, secure ‘essential’ income. The plan manages all assets and income sources holistically to secure essential income. This is defined as the minimum, core inflation-protected income sufficient to meet the retiree’s ‘essential’ needs for the remainder of their (and their partner’s) life. State or social security pensions are also usually inflation protected, so should form the basis of providing essential income in retirement.

Third, have insurance and a ‘rainy day’ fund to cover contingencies. The plan uses insurance solutions, when available and cost effective, to cover contingencies. Where appropriate, rely on state support and maximize the welfare benefits available from the state, such as relief from local authority or municipal taxes. Where possible, maintain flexibility by holding sufficient assets to meet uninsurable shocks (i.e., a ‘rainy day’ fund consisting of cash deposits in banks and bonds).

Fourth, secure ‘adequate’ income. Secure an adequate level of life-long income above the minimum if there is sufficient wealth. ‘Adequate’ income is defined as that needed to achieve the minimum lifestyle to which the pensioner aspires in retirement.

Fifth, achieve a ‘desired’ standard of living and make bequests. The plan uses a simplified choice architecture for managing any residual wealth to achieve a ‘desired’ standard of living in retirement, while allowing part of the remaining wealth to be bequeathed at a time of the retiree’s choosing. Deferred annuities<sup>19</sup>—purchased as part of the phased annuitization strategy discussed earlier—can be used to ensure the pensioner maintains the desired standard of living, while still having the resources to make bequests.<sup>20</sup> Otherwise, the risk is that the pensioner lives so long that they exhaust all their wealth before they die and leave nothing for their heirs.

This is a universal plan for all retirees, although not all retirees will have the resources to use all stages of the plan.

A SPEEDOMETER plan deals with behavioural traits through: the use of **pre-commitment devices** and **inertia**; the use of defaults; the plan, NOT the member, deals with the complexity of decumulation decision making; the use of money-back annuities; the use of phasing; and **positive norming** via effective communication.

A SPEEDOMETER plan involves just four key behavioural nudges: first, make a plan; automatic phasing of annuitization; capital protection in the form of ‘money-back’ annuities; and the slogan ‘spend more today safely’ to reinforce that ‘buying an annuity is a smart thing to do’.



## 5. How Networks Can Help

It has been recognized for some time that nudging is more effective in networks. There are a variety of possible networks that can help overcome behavioural barriers.

### 5.1. Pre-Retirement Networks

Pre-retirement networks will be particularly useful in cases where individuals are not already members of pension plans.

**Employment-based networks.** These are most effective for encouraging pension savings and helping to pay-off debt (e.g., student loans) via pay-roll deduction, with the deductions used to create positive savings once debts have been paid off.

Alan Pickering (2022)<sup>21</sup> argues that ‘Employees trust their employer and therefore the workplace is the ideal environment in which to provide access to a wide range of financial services. These can include bank accounts, protection policies, rainy day money, and long-term savings like pensions. Everyone needs such access but the mix will require fine tuning based on cohort and personal circumstances. . . . (We) need to encourage employer engagement in the accumulation of workplace savings which have pensions at their heart’.

**Social media networks (SMNs).** The key social media networks are Facebook, LinkedIn, Twitter, Instagram and YouTube. There is also Pinterest, principally for adult women, and Tiktok and Snapchat, mainly for younger people.<sup>22</sup>

To illustrate, SMNs can be used to show the effectiveness of, say, savings strategies. An example is ‘Daily Dollar’, a daily budgeting Facebook app which ‘brings to life the notion that small lifestyle changes can add up to big savings’.<sup>23</sup> You can publish the results on your Facebook profile.

In an article entitled ‘The Importance of Social Media in Retirement Planning’, Rick Pandykoski (2012)<sup>24</sup> argues that:

*Social media networks . . . are a powerful means of networking, socializing and gaining information. While chatting with their peers, friends, relatives and acquaintances, people gain tremendous knowledge about (amongst other things) how they are planning for their retirement.*

*Experts believe that gaining information on how your peers are planning for their retirement years helps people in making decisions for their own retirement plan. The influence is so strong that many retirement planning companies are offering peer data information in their communication to influence people in their customers’ network.*

*. . . A retirement planning product that has been validated by people they know and trust will always be preferred by a customer. This is the reason why companies repeatedly request their customers to ‘Like’ them over Facebook, or ‘re-tweet’ them over Twitter. Besides, you always have the option to discuss a particular retirement plan and your retirement goals at length over social networking sites with your knowledgeable friends before you finally decide to buy a retirement planning policy.*

SMNs can also be used to assess financial advisers, as Carmen Reinicke (2020) points out: ‘One of the best reasons to follow financial advisers on various social media platforms is to get a glimpse of their personality. How they conduct themselves online will reflect their money and life philosophies, as well as personal styles of engagement. If they’re sharing their opinions and takes, you can get some insights into what it would be like to work with them. . . . You’ll also want to make sure that any adviser you’re consider is a fiduciary, meaning someone legally and ethically bound to act in your best interest’.

**Age-based networks.** Networks based on the age of their members can support the development of good money management skills and improved financial decision making—which, in turn, can make retirement planning easier.

To illustrate, Experian, a consumer credit reporting company, has used the data it collects to identify different types of individuals based on their age, spending patterns and post or zip code—see Table 1.

**Table 1.** Age-based networks. Source: [www.experian.co.uk](http://www.experian.co.uk) (accessed on 9 May 2022).

<i>Age Range</i>	<i>Description</i>
Baby Boomers (1946–1964)	Gilt Edge Lifestyles Mid Life Affluence Modest Mid Years Advancing StatusAgeing Workers
Generation X (1965–1981)	Successful Starts Happy Housemates Surviving Singles On the Breadline Flourishing Families
Generation Y (1982–1995)	Happy Housemates Surviving Singles On the Breadline

One example is *Happy Housemates* from Generation X and Y. In August 2021, NatWest Bank in the UK released a *Housemate* app to help renters manage shared bills: ‘The app is designed to simplify the shared living experience, connecting tenants to help manage their finances more easily. Housemate can track who owes each other money and could provide an easy way to repay instantly using Open Banking. The technology could let housemates securely link their current account to the app and make payments to those they owe money to . . . and could help them build their history with NatWest’s data partner, Experian’. Experian added: ‘By using the data made available through Open Banking, financial services providers are helping people take more control of their financial health and manage their money more effectively’,<sup>25</sup> and, this in due course, will also apply to the money that goes into their pension plans.

By contrast, those at the other end of the affluence scale—*Gilt Edge Lifestyles*, *Mid Life Affluence* and *Flourishing Families*—can be offered more sophisticated tailor-made pension plans, such as SIPPS (self-invested personal pension schemes) in the UK, by pension plan providers.<sup>26</sup>

**Networks based on personality types.** Different personality types have different strengths and weaknesses. Networks can be used so those with strong personalities can become role models to support those with weaker personalities.

To illustrate, Ameriprise Financial is a network of 10,000 financial advisers in the US ‘who help people prepare financially for what’s next in their lives’. In 2006, the company, working with consultancies Age Wave and Harris Interactive, conducted the New Retirement Mindscape study<sup>27</sup> of more than 2000 Americans ages 40–75 and found that ‘retirement is a complex process made up of distinct emotional stages’ and identified five stages of progression into retirement:

- Stage 1: Imagination (6–15 years prior to retirement)—Retirement is viewed positively as an opportunity for adventure and empowerment, although only 44% said they were ‘on track’ in terms of preparation.
- Stage 2: Anticipation (5 years prior to retirement)—As retirement draws, 80% said they ‘will be able to achieve their dreams in retirement’, although two years prior to retirement, worries and anxiety mount, with 22% saying that they will feel a sense of loss after their working years are over.
- Stage 3: Liberation (Retirement Day and one year following)—This is a time of great excitement, relief and enthusiasm as 78% of people say they are ‘enjoying retirement a great deal’.
- Stage 4: Reorientation (2–15 years after retirement)—For many the feeling of liberation is short-lived, giving way to feelings of emptiness (49%), worry (38%) and boredom (34%). Four distinct profiles emerged: *Empowered Reinventors* (19%), *Carefree Contents* (19%), *Uncertain Searchers* (22%) and *Worried Strugglers* (40%)—see Table 2.

- Stage 5: Reconciliation (16 or more years after retirement)—This a stage of increased contentment, acceptance and personal reflection, with people coming to terms with all that retirement has to offer. There are lower levels of depression (5%), though some people (22%) report feelings of sadness as they confront end-of-life issues.

**Table 2.** Networks based on personality types. Source: *The New Retirement Mindscape* (Ameriprise Financial, January 2006).

<i>Personality Type in Retirement</i>	<i>Description</i>
Empowered Reinventors (19%)	Can easily adapt to change—welcome adventure and new challenges
Carefree Contents (19%)	Optimistic about coping with change—but do not seek adventure or new challenges
Uncertain Searchers (22%)	Recognise change could be fulfilling and satisfying, but still trying to make sense of change
Worried Strugglers (40%)	Worried, bored or saddened after the change. Lack of planning and preparation play a role here

Building on the study’s findings, Ameriprise Financial developed *The Dream Book* as a ‘guide to help people identify their priorities, values and dreams for retirement. (It) encourages and helps people to envision how they want to spend their retirement years from a lifestyle and emotional perspective before crunching the numbers, . . . (by posing) thought-provoking questions such as—what you still want to achieve, who you want to spend more time with, what you’re most passionate about and how you want to make your lasting mark’.

*Empowered Reinventors* stood out as potential role models, since they had been the most proactive about retirement planning and were the most optimistic about the future and were in a position to offer other members of the network the ‘valuable lesson that some amount of advanced planning can help prepare (people) for a more rewarding retirement’.

**Close personal networks.** Family, friends and neighbours, can be effective in promoting a ‘people like us’ herding effect. As Gwendolyn Seidman (2018) points out—drawing on research by Sprecher et al. (2013) and Hampton et al. (2018)—‘we tend to like people who are similar to us’ because ‘meeting people who share our attitudes makes us feel more confident in our own attitudes about the world (consensual validation)’ and ‘one benefit of relationships is that we can gain new knowledge and experiences by spending time with someone else (self-expansion opportunity)’. Such networks could be used to encourage savings—initially precautionary savings and then longer-term savings—if one of its members offered to become a trusted champion<sup>28</sup>—and possibly also with outside support from the local authority or a relevant charity, e.g., Money Helper,<sup>29</sup> the Money Charity<sup>30</sup> and the Money Saving Expert Charity<sup>31</sup> in the UK. There are also a number of charities that provide help if people get into debt, e.g., Step Change<sup>32</sup> in the UK. These charities could also be used to help people develop a savings habit once the burden of debt has been lifted.

## 5.2. Post-Retirement Networks

After retirement, a new set of networks can help to deal with the challenges of old age.

Dr. Joseph Coughlin (2021) who heads the AgeLab at the Massachusetts Institute of Technology,<sup>33</sup> argues that:

*Comprehensive retirement planning, that is longevity planning, is about more than financial security, it is about ensuring your true social security. So what is the balance and status of your social portfolio? Here are four questions to consider:*

- (1) Do you have an ample number of friends that provide the social capital necessary to address life's many dimensions: to remain connected, to have fun, and to manage difficult times?
- (2) Do you have human friends that they, and you, can share all with—or are they social media friends that only share pet pics?
- (3) Are you actively seeking activities and places to increase the number of chance collisions you have to encounter new people and to make new friends across the life course?
- (4) And . . . when was the last time you picked up the phone and privately asked a friend from long ago, "Hi, how ya doin'?"

Rob Pascale (2019)<sup>34</sup> in an article entitled 'Why It's Important to Stay Social in Retirement and How to Do It', warns that:

*Maintaining an active social life gets harder with age. Little by little, people we were close to move away or pass away. And when we retire, we lose about half of our social network. As our social pool evaporates, it's difficult to replenish, because options are limited or we're not motivated enough to meet new people.*

*. . . Staying socially connected is essential to one's well-being. A good social life . . .*

- *Provides a sense a belonging and feeds our personal identity.*
- *Adds meaning to life and strengthens self-worth.*
- *Provides support, making it easier to handle problems and keeping stress levels in check.*
- *Gives us something to do and someone to do it with.*

*Social isolation, in contrast, is as high a health risk factor as obesity and smoking 15 cigarettes a day. On the psychological side, self-esteem can be weakened and there's a higher risk of depression. There can also be physical consequences, possibly from a lack of activity, but also from the stress of feeling alone. Those who are socially disconnected . . .*

- *Are more at risk of high blood pressure, coronary disease, and stroke.*
- *Have a faster breakdown of cognitive skills and greater likelihood of dementia because the mind is less active.*
- *Have greater decline of functional skills, such as walking or climbing stairs.*
- *Have a weakened immune system, possibly linked to stress.*

*So, what makes for a good social life? For sure, it's the number of people we interact with and the amount of time we dedicate to them. But it's also about diversity—the broader and more diverse one's social circle, the better. That's how you get exposed to new ideas and different ways of thinking.*

*. . . Commit time each day to seek out ways and places to meet people. Here's some ideas that might help you get there . . .*

- *Meet up with your current friends and acquaintances regularly—even the annoying ones. Nurture these relationships and recognize the benefits they provide.*
- *Use the internet to track down old friends with whom you've had meaningful relationships in the past.*
- *Join clubs and senior organizations or start your own. This may sound silly, but if you know one person who knows another who knows another, soon they'll be enough folks to meet anyone's social needs. You might try setting up a group on a theme basis, e.g., dining, wine tasting, golf, etc.—that way you can spend time with people who share your interests.*
- *Take a class or two at your local college, library, or community centre.*
- *Consider taking a job outside the home, specifically for the social benefits.*

*If you're not sure whether your social life is adequate, it probably isn't and you need to fix that. Do it for your health, if not for the sheer enjoyment.*

Trusted information guides can also help. For example, the US Society of Actuaries has an Ageing and Retirement Strategic Research Programme which produces guides such as:

- *Retirement—Health and Happiness* (Society of Actuaries 2017). This guide addresses questions, such as ‘How do I make sure that I am emotionally healthy in retirement?’ and ‘How do I make sure that I remain physically active in retirement?’
- *Late-in-Life Decisions Guide* (Society of Actuaries 2022).
  - *This guide uses a holistic approach to identify resources and best practices. Such an approach helps connect critical health care, housing, and other financial choices with practical life management decisions during one’s later years. Readers will address financial management assistance and explore key questions. This guide will address special housing needs, recognizing the need for assistance, finding help around the home, avoiding scams and fraud, and building a local support network.*
  - *Retirees may need help with life’s challenges, but recognizing when it’s time to seek assistance is not always obvious, especially when cognitive decline occurs. Sometimes the need is easy to identify, such as hiring a housekeeper when physical limitations make housekeeping difficult. Other times, the need is difficult to identify, such as knowing when to seek help with day-to-day financial management or an attorney for legal issues. Having a support network is critical to managing these and similar challenges.*

Clearly, pre-retirement networks are qualitatively very different from post-retirement networks. The principal purpose of the former is *financial*: to help to get people to recognize the importance of saving enough to have a comfortable standard of living in retirement. The principal purpose of the latter is *social*: first to help to get people to recognize the importance of social interaction, so they enjoy their retirement free from worry, boredom and sadness; and second to provide social support when cognitive decline sets in. Equally clearly, if the pre-retirement networks fail to achieve their objectives, then the post-retirement networks are also more likely to fail—potentially leading to shortened life expectancy through ‘deaths of despair’. This is a very important message to get across to younger people.

## 6. How to Implement the Plans: A Life Cycle Fund Plus Corporate Platform

In this section, we look at one way of implementing SMART and SPEEDOMETER plans: using a life cycle fund and a corporate platform.

A life-cycle fund manages savings and loans around key life events: paying off student loans and future debt management; tax-efficient short/medium term savings vehicles (such as Individual Savings Accounts in the UK) and share incentive plans; house purchase; marriage; children and school fees; holidays; retirement; inheritance and tax planning; and long-term care.

The plan can be implemented using a (corporate) wealth management platform (or wrap) with the employer as facilitator between employees and financial services providers, thereby exploiting one of the most effective networks discussed in the previous section.

An important question to address is how much choice and flexibility should be offered. *Econs* like lots of choice and flexibility. Many people, especially the young, claim to like choice and flexibility, especially the flexibility to delay starting a long-term pension savings programme! This would appear to suggest that the platform should provide lots of self-selection. But is this really suitable? *Humans* do not really like that much choice and flexibility. Rather they like well-designed defaults when they are explained to them in simple terms. This suggests that they should be offered suitably segmented information and products, selected on the basis of effective client profiling (such as that based on the personality types listed in Table 2).

We also need to recognize that savings is a habit that needs to be encouraged from a very early age: first, get ‘em young! One simple way of doing this is to have four boxes for pocket money as shown in Figure 5. The first box (labelled ‘instant gratification’) is for savings that are available for immediate spending. The second box (labelled ‘feel good’) is the charity box, savings to be used for spending on someone other than oneself, such as buying a present for Mum. The third box (labelled ‘deferred gratification’) is short-term

saving for a specific item, such as an expensive toy: when sufficient money has been saved to buy the toy, it is purchased. The fourth box (labelled ‘precautionary or long-term savings’) is savings for an unspecified purpose (i.e., a rainy day fund). When the child grows up, this turns into the life-cycle fund (and, as the adult gets older, it becomes mainly the pension fund).



**Figure 5.** Four boxes for pocket money.

## 7. The Role of Legislation

Despite their clear attractions, companies will rarely if ever introduce SMART plans without government legislation requiring them to do so. For example, the US Pension Protection Act of 2006 introduced auto-enrolment into 401(k) plans with an employee contribution of 4% of the employee’s pay and a minimum matching employer contribution of at least 2%. Similarly, the UK Pensions Act of 2008 introduced auto-enrolment from 2012 with minimum contributions of 8% of the employee’s pay (4% from the employee, 3% from the employer and 1% in tax relief from the government). These Acts allowed the introduction of SMART plans in the US and UK, respectively.

However, the minimum contribution rates are low and will not generate a decent pension in retirement. Again, it took legislation to rectify this. The US Securing a Strong Retirement (Secure 2.0) Act of 2022<sup>35</sup> will increase employee contributions by 1% annually until it reaches 10%.

Unfortunately, there has been no legislation requiring the introduction of SPEEDOMETER plans which is why no country has so far introduced them. Legislators need some form of nudging here.

They also need nudging about the absence of a market in deferred annuities. This is a very serious lacuna in retirement income provision. The reason for the missing market is that life insurance companies have to post significant amounts of regulatory capital because of the absence of available instruments to hedge the longevity risk in the deferred annuities—and this makes them unprofitable to sell. [Blake and Burrows \(2001\)](#) suggested that the government issue longevity (or survivor) bonds—annuity bonds<sup>36</sup> with coupons linked to the mortality experience of the national retired population of a country—and these could be used by life insurers to hedge the longevity risk in their annuity book and hence get sufficient capital relief to make the sale of deferred annuities profitable. Unfortunately, no government has issued longevity bonds to date.

## 8. Conclusions

Behavioural economics teaches us that we should assume nothing or at least very little when it comes to improving the life-cycle consumption-savings balance for most people. Products and marketing strategies should be designed with the abilities of less sophisticated, less experienced people in mind: this will involve guiding choices, choice-editing, etc. Wherever possible, we should work with human biases—not against.

One of the most powerful behavioural traits is **inertia**. This needs to be used positively in the design of retirement savings plans. Once signed up to, say, auto-enrolment or auto-escalation, the vast majority (around 90%) of people (Bourquin and Crawford 2020) tend to remain signed up—and this is principally due to inertia.

**Nudging** will help if the product design is good. Another critical lesson is that the default features of the pension plan should be well designed. These are the default contribution rate, the default investment strategy during the accumulation phase (including the de-risking glide path leading up to retirement) and the default income withdrawal strategy in decumulation (which must involve the purchase of some form of longevity hedge—such as a lifetime annuity—at some stage). There is absolutely no point in nudging people towards a poorly designed pension plan.<sup>37</sup> **Networks** can help support and reinforce good individual behaviour.

Well-designed pension plans recognize the need to help both *Human Spenders* and *Human Hoarders*. People need reassurance that it pays to save. Pension death benefits need to be as generous for annuities as they are for income drawdown from the pension pot, where the full amount of any unspent pension wealth can be bequeathed on death.<sup>38</sup> Phasing into annuitization and the use of deferred annuities may be more acceptable. Annuity products with equity linking might be valuable for those who are sufficiently risk tolerant.

An important lesson of behavioural economics is that better communication and education alone will not work. There is an overriding need for a well-designed default option. As David Laibson of Harvard University has said: ‘Education no substitute for a good default’.<sup>39</sup> This is because the vast majority of individuals will not be able to design their own retirement income programme. Who wants to go into a car show room and be offered a choice of car kits to self assemble? All the heavy lifting has to be in the design of the default.

However, even well-designed defaults are not enough. Legislators need to understand the issues raised in this paper—and legislate for the wider introduction of both SMART plans and SPEEDOMETER plans and to support the development of a market in deferred annuities by introducing, for example, longevity bonds to help annuity providers hedge longevity risk.

**Funding:** This research received no external funding.

**Acknowledgments:** The author is grateful for the comments of three anonymous referees.

**Conflicts of Interest:** The author declares no conflict of interest.

## Notes

- <sup>1</sup> Blake and Pickles (2021b) discuss the role of exponential growth bias and present bias in the valuation of retirement savings using the Mental Time Travel framework of Blake and Pickles (2021a).
- <sup>2</sup> The short-term personal discount rate is so high that two apples tomorrow have a lower present discounted value than one apple today.
- <sup>3</sup> The long-term personal discount rate is much lower so that two apples in 51 days have a higher present discounted value than one apple in 50 days.
- <sup>4</sup> Which is the majority of members in private sector company plans. Defined benefit (DB) pension plans are now confined primarily to the public sector. In DB plans, the investment decision is made by the plans themselves not the members.
- <sup>5</sup> To illustrate, suppose an individual owns a house and has liquid assets in the form of bank deposits and risk-free fixed-income government bonds. Suppose also that the interest rate on the liquid assets is very low—as at the time of writing. Suppose now there is a big increase in inflation and in particular house price inflation. This will increase the real value of the house, but reduce the real value of the liquid assets. If the individual keeps the house and the liquid assets in two separate mental accounts, they might decide to reduce current consumption due to the reduced real value of the liquid assets, since the house is not treated as currently accessible. However, if the real value of the house increased by more than the reduction in the real value of the liquid assets and the individual looked at their total wealth which has now increased, they might decide to increase current consumption. This would be the optimal strategy.

- 6 This reflects the additional problem that women have when it comes to pension provision. Most (83%) of the women surveyed had worked part-time for at least one year during their career and 27% had worked part-time for more than a decade. See Partridge (2022).
- 7 The average age at which someone will die.
- 8 Another behavioural trait is that people tend to overestimate low probability events, such as dying immediately after retirement.
- 9 People tend to underestimate high probability events, such as living beyond life expectancy.
- 10 By gradually reducing the weight of the pension fund in equities and increasing the weight in low-risk bonds.
- 11 In the case of the UK's National Employment Savings Trust (NEST), it is 99% of members (Understanding our members' investment needs, Research to inform Nest's investment strategy, December 2021; [www.nestpensions.org.uk/schemeweb/dam/nestlibrary/member-evidence-research-report.pdf](http://www.nestpensions.org.uk/schemeweb/dam/nestlibrary/member-evidence-research-report.pdf) (accessed on 9 May 2022)).
- 12 When interest rates are low, annuity rates will be low, since annuity providers buy bonds to make the annuity payments and bond prices will be high. However, low interest rates encourage companies to borrow to invest and this can lead to an investment boom and an overheating economy. The monetary authorities will then raise interest rates to constrain inflation. This, in turn, will reduce bond prices and raise annuity rates. But high interest rates will discourage investment and the economy will contract and unemployment will increase. To avoid a recession, the monetary authorities will lower interest rates—and the cycle repeats. Trying to time the interest rate cycle in order to judge the best time to buy an annuity is a difficult if not impossible task. This is why buying tranches of annuities over time is a more sensible strategy for hedging interest rate risk.
- 13 The left panel of Figure 1 shows that 0.8% of 65-year olds will die before age 66. Their annuity payments will end and be transferred to survivors in the form of a survivor credit or mortality premium. The return on an annuity therefore exceeds the return on a risk-free bond by the level of the survivor credit.
- 14 <https://www.statista.com/statistics/664840/average-market-risk-premium-usa/> (accessed on 9 May 2022).
- 15 Every year an increasing percentage of the surviving population will die each year, that is, the percentage of 66-year olds who die before age 67 will be higher than the percentage of 65-year olds who die before age 66, etc.
- 16 Without the risk of a big reduction in capital value, unlike equities.
- 17 The name SPEEDOMETER was also chosen to reflect the fact that the aim of the plan is to monitor the speed of fund decumulation, so it is not too fast and not too slow, but just the right safe speed to maximize retirement expenditure without the risk of ever running out of funds before death.
- 18 For example, the Money and Pensions Service in the UK; <https://moneyandpensionsservice.org.uk/> (accessed on 9 May 2022).
- 19 Deferred annuities are a very useful component of any retirement investment strategy. Unfortunately, they are not available for sale in many countries. One of the key reasons for this is that they are expensive for insurers to provide because of high regulatory capital requirements. This is the case for countries subject to Solvency II, for example. The absence of deferred annuities is a significant market failure.
- 20 This requires individuals to spend only from the income from the annuities and deferred annuities and not to dip into their residual unannuitized wealth which is intended to be bequested when the individuals die.
- 21 Pickering is president of BESTrustees and a trustee of a number of UK pension schemes, including the Plumbing Industry Pension Scheme and People's Pension. He is also a former chair of: the financial literacy charity, Life Academy; the National Association of Pension Funds (NAPF), now called the Pensions and Lifetime Savings Association (PLSA); and the European Federation for Retirement Provision (EFRP).
- 22 <https://www.adobe.com/express/learn/blog/top-social-media-sites> (accessed on 9 May 2022).
- 23 <https://www.banktech.com/channels/suntrust-introduces-daily-budgeting-application-for-facebook/d/d-id/1293419d41d.html?> (accessed on 9 May 2022).
- 24 Pendykoski runs Self Directed Retirement Plans LLC, a retirement planning firm (accessed on 9 May 2022).
- 25 <https://www.natwestgroup.com/news/2021/08/natwest-launches-new-housemate-app.html> (accessed on 9 May 2022).
- 26 [https://lib.standardlife.com/library/investors\\_day\\_31\\_may.pdf](https://lib.standardlife.com/library/investors_day_31_may.pdf) (accessed on 9 May 2022).
- 27 <https://ir.ameriprise.com/news-events/news-releases/press-release/2006/The-New-Retirement-MindscapeSM-Ameriprise-Financial-Goes-Beyond-the-Numbers-to-Map-the-Emotional-Stages-of-Retirement/default.aspx> (accessed on 9 May 2022).
- 28 For example, I have given pensions advice to numerous colleagues at the institutions I have worked at.
- 29 <https://www.moneyhelper.org.uk/en> (accessed on 9 May 2022).
- 30 <https://themoneycharity.org.uk/advice-information/savings/> (accessed on 9 May 2022).
- 31 <https://www.moneysavingexpert.com/site/mse-charity-fund/> (accessed on 9 May 2022).
- 32 <https://www.stepchange.org> (accessed on 9 May 2022).
- 33 [agelab.mit.edu](http://agelab.mit.edu) (accessed on 9 May 2022).
- 34 Pascale is a retired research psychologist and author of *The Retirement Maze*.
- 35 <https://www.congress.gov/bill/117th-congress/house-bill/2954/text> (accessed on 9 May 2022).



- 36 Bonds that make coupon payments only and have no principal repayment.
- 37 Dowd and Blake (2022) discuss the good design of defined contribution pension plans.
- 38 Although there could be an inheritance tax liability.
- 39 Pioneer Investment's European Colloquia 2007.

## References

- Bell, Allison. 2022. Bad Retirement Savers Expect to Die Young. *Think Advisor*, April 14. Available online: <https://www.thinkadvisor.com/2022/04/14/bad-retirement-savers-expect-to-die-young/> (accessed on 9 May 2022).
- Blake, David, and John Pickles. 2021a. Mental Time Travel and the Valuation of Financial Investments. *Review of Behavioral Finance*. forthcoming. [CrossRef]
- Blake, David, and John Pickles. 2021b. Mental Time Travel and Retirement Savings. *Journal of Risk and Financial Management* 14: 581. [CrossRef]
- Blake, David, and Tom Boardman. 2013. Spend More Today Safely: Using Behavioural Economics to Improve Retirement Expenditure Decisions with SPEEDOMETER Plans. *Risk Management and Insurance Review* 17: 83–112. [CrossRef]
- Blake, David, and William Burrows. 2001. Survivor Bonds: Helping to Hedge Mortality Risk. *Journal of Risk and Insurance* 68: 339–48. [CrossRef]
- Blake, David, Mel Duffield, Ian Tonks, Alistair Haig, Dean Blower, and Laura MacPhee. 2021. Smart Defaults: Determining the Number of Default Funds in a Pension Scheme. *The British Accounting Review*, August 28. [CrossRef]
- Bourquin, Pascale, and Rowena Crawford. 2020. *Automatic Enrolment—Too Successful a Nudge to Boost Pension Saving?* London: Institute for Fiscal Studies, Available online: <https://ifs.org.uk/publications/14850> (accessed on 9 May 2022).
- Coughlin, Joseph. 2021. Got Friends? 4 Questions about Retirement Planning, True Social Security and Social Media. *Forbes*, August 24. Available online: <https://www.forbes.com/sites/josephcoughlin/2021/08/24/got-friends-4-questions-about-retirement-planning-real-social-security--social-media/?sh=1335a3c56f26> (accessed on 9 May 2022).
- Dowd, Kevin, and David Blake. 2022. Good Practice Principles in Modelling Defined Contribution Pension Plans. *Journal of Risk and Financial Management* 15: 108. [CrossRef]
- Goda, Gopi Shah, Matthew R. Levy, Colleen Flaherty Manchester, Aaron Sojourner, and Joshua Tasoff. 2019. Predicting Retirement Savings Using Survey Measures of Exponential Growth Bias and Present Bias. *Economic Inquiry* 57: 1636–58. [CrossRef]
- Hampton, Adam J., Amanda N. Fisher Boyd, and Susan Sprecher. 2018. You're Like Me and I Like You: Mediators of the Similarity-liking Link Assessed Before and After a Getting-acquainted Social Interaction. *Journal of Social and Personal Relationships* 36: 2221–44. [CrossRef]
- Panis, Constantijn W. A. 2004. Annuities and Retirement Satisfaction. In *Pension Design and Structure: New Lessons from Behavioural Finance*. Edited by Olivia Mitchell and Stephen Utkus. Oxford: Oxford University Press.
- Partridge, Joanna. 2022. Half of Older Women Fear Having to Work beyond UK State Pension Age—Survey Underlines Lasting Impact That Career Breaks or Working Part-Time Can Have on Payouts. *The Guardian*, May 9. Available online: <https://www.theguardian.com/money/2022/may/09/half-of-older-women-fear-having-to-work-beyond-uk-state-pension-age-study> (accessed on 9 May 2022).
- Pascale, Rob. 2019. Why It's Important To Stay Social In Retirement And How To Do It. *Forbes*, October 31. Available online: <https://www.forbes.com/sites/robpascale/2019/10/31/staying-social-in-retirement/> (accessed on 9 May 2022).
- Pendykoski, Rick. 2012. The Importance of Social Media in Retirement Planning. *Social Media Today*, November 26. Available online: <https://www.socialmediatoday.com/content/importance-social-media-retirement-planning> (accessed on 9 May 2022).
- Pickering, Alan. 2022. *Levelling Down Pensions*. London: Portfolio Institutional, Issue 112.
- Reinicke, Carmen. 2020. Need Help with Financial Planning? Look on Social Media. *CNBC*, October 25. Available online: <https://www.cnbc.com/2020/10/25/how-social-media-can-help-with-financial-planning.html> (accessed on 9 May 2022).
- Seidman, Gwendolyn. 2018. Why Do We Like People Who Are Similar to Us? *Psychology Today*, December 18. Available online: <https://www.psychologytoday.com/gb/blog/close-encounters/201812/why-do-we-people-who-are-similar-us> (accessed on 9 May 2022).
- Society of Actuaries. 2017. Retirement—Health and Happiness. Available online: <https://www.soa.org/globalassets/assets/files/research/projects/2017-retirement-health-happiness.pdf> (accessed on 9 May 2022).
- Society of Actuaries. 2022. Late-In-Life Decisions Guide. Available online: <https://www.soa.org/globalassets/assets/files/resources/research-report/2022/lil-decisions-guide.pdf> (accessed on 9 May 2022).
- Sprecher, Susan, Stanislav Treger, and Joshua D. Wondra. 2013. Effects of Self-disclosure Role on Liking, Closeness, and Other Impressions in Get-acquainted Interactions. *Journal of Social and Personal Relationships* 30: 497–514. [CrossRef]
- Stango, Victor, and Johathan Zinman. 2009. Exponential Growth Bias and Household Finance. *Journal of Finance* 64: 2807–49. [CrossRef]
- Thaler, Ricard H. 1981. Some Empirical Evidence on Dynamic Inconsistency. *Economics Letters* 8: 201–7. [CrossRef]
- Thaler, Richard H., and Shlomo Benartzi. 2004. Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving. *Journal of Political Economy* 112: S164–S187. [CrossRef]
- Thaler, Richard H., and Cass Sunstein. 2008. *Nudge: Improving Decisions about Health, Wealth & Happiness*. New Haven and London: Yale University Press.