Reframing the Retirement Saving Challenge: Getting to a Sustainable Lifestyle Level

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An increasing number of individuals will be unable to retire comfortably amidst an international retirement savings crisis. Research suggests that behavioral factors contribute to inadequate retirement savings. We present a procedure that reframes the retirement savings decision, aimed at alleviating some of the negative effects of the behavioral factors. This procedure shifts the focus from the required wealth at retirement (the future) to the lifestyle an individual can afford to maintain now (the present). A sustainable lifestyle level (SLL) approach is expressed mathematically and illustrated with practical examples. The SLL approach offers a practical tool for retirement planning professionals to present recommendations that are simple and easy to understand for individuals faced with complex retirement planning decisions.

Keywords: behavioral finance, financial planning, framing effects, nudge, present bias, retirement planning

Anyone hoping to retire in financial comfort one day has to save from their current income to support themselves in retirement. Many people do not save enough to achieve this goal. For instance, an estimated 50% of working-aged U.S. households will not have sufficient income provision to sustain their preretirement lifestyle during their retirement years (Munnell, Hou, & Sanzenbacher, 2018).

As Shefrin (2002) explains, saving for retirement should be a simple process. Individuals have to identify what their financial needs will be during retirement, save enough, and invest appropriately to ensure that they accumulate the required funds, and see to it that they do not consume their retirement funds too quickly. Although this appears straightforward, many people find saving for retirement difficult. Shefrin outlines the psychological phenomena associated with the difficulties they experience.

The first is myopia. This is a narrow framing of savings decisions in which the individual pays more attention to the short-term requirement to forfeit funds than to the long-term benefit of receiving funds during retirement. The second is overconfidence. Investors simply believe that they will have sufficient funds in the future, even though they have

no clear plans in place to ensure this. The third is a lack of self-control. Individuals yield to the temptations of present consumption.

In this article, we focus primarily on the negative effects of present bias caused by myopia. We suggest a new approach that reframes the retirement savings decision. This approach is aimed at mitigating the detrimental effects of present bias.

The conventional retirement planning process starts with estimating a client's financial requirements at retirement, usually far into the future. Individuals who are subject to present bias find it difficult to visualize their needs far into the future. They are often not appropriately concerned about their future consumption expenditures because they are mostly focused on the present. As a result, they are likely to respond inadequately to the signals that the current planning process generates (Howard & Yazdipour, 2014).

To mitigate the effects of present bias, we suggest that the decision be reframed to focus on present consumption and not on future needs. Our approach is to ask what level of consumption (or lifestyle) an individual can afford now and still save enough to maintain this level of consumption

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(lifestyle) up to and during retirement. We call this level the sustainable lifestyle level (SLL).

We suggest that the conversation between a financial planner and their client should focus on the retirement savings needed to reach the SLL. In doing so, the focus of the conversation moves from the future (What shall I need in the future?) to the present (What can I afford now?).

In order to explore the characteristics of the SLL, we introduce a simplified model of the retirement savings decision and use this to derive an expression that can be used to estimate the SLL. We use this to explore how the SLL will vary in different circumstances.

We show that the basic SLL calculation (derived from our simplified SLL model) provides a very simple answer that requires few inputs from the client. It also provides a simple message about saving for retirement. Clients should reduce their consumption levels to what they can afford now (or risk having to drop their standard of living during retirement).

The remainder of this article is in four sections. In the first section, we review the literature on the retirement savings crisis and the behavioral factors that influence retirement savings. The next section we develop the SLL approach—introducing the concept, developing a simplified model to estimate the SLL, and exploring its characteristics. In the following section, we discuss the practical advantages and limitations of the SLL approach. The final section concludes.

Literature Review

The Retirement Savings Crisis

Many people do not save sufficiently for retirement. Close to 60% of American working-age individuals have no retirement account savings. Even when individuals' entire net worth is taken into account as retirement provision, over two-thirds of working individuals do not have sufficient retirement savings (Brown, Saad-Lessler, & Oakley, 2018). The National Retirement Risk Index (NRRI) places 50% of working-age U.S. households at risk of having insufficient savings to sustain their preretirement lifestyle during retirement (Munnell et al., 2018). According to Benartzi and Thaler (2013), many countries are facing this challenge,

which they refer to as a "retirement savings crisis" (p. 1152). Reyers (2018) similarly reports a worldwide concern about insufficient retirement provision.

The three main sources of retirement income in the United States are Social Security, employment-based plans, and private savings (Hanna, Kim, & Chen, 2016). Social Security is a mandatory system that provides benefits to almost all U.S. workers. According to the National Institute on Retirement Security, the current Social Security benefit formula provides for the replacement of only about 35% of preretirement income for the typical household, leaving an income gap that needs to be filled in other ways, either from employment-based plans or from private savings (Rhee & Boivie, 2015).

Arguably two of the largest contributing factors to the retirement savings crisis are lack of access to employment-based retirement plans and the ongoing shift in practice from defined-benefit (DB) pension plans to defined-contribution (DC) pension plans (Benartzi & Thaler, 2013; Merton, 2014; Rhee & Boivie, 2015). Employment-based plans include DB plans and DC plans. The former guarantees employees a predefined lifelong retirement income, usually calculated according to the years of employment and final salary, whereas the income from DC plans is dependent on the level of accumulated savings at retirement. According to the National Institute on Retirement Security, only 51% of American private sector workers have access to employer-based plans. Of those who do participate in these plans, an increasing majority are covered by DC plans, while access to DB plans continues to decrease (Brown et al., 2018). For almost half of the private sector workers who do not have access to employment-based plans, the only option is to save privately through an individual retirement account (IRA). The responsibility to secure sufficient retirement provision has therefore mostly shifted to individual employees (Pfau, 2018). Given the large percentage of households that are at risk of inadequate retirement provision, it is clear that many individuals are not accepting this responsibility.

In addition to the external factors described, such as access to DC and DB plans, there are a number of behavioral factors that may have a negative impact on an individual's tendency to make adequate retirement provision.

Behavioral Factors Influencing the Retirement Savings Decision

Many researchers have identified behavioral factors that could affect investment decisions. These are broadly identified as biases, heuristics, and framing effects (Baker & Ricciardi, 2015).

Present Bias. An important behavioral factor contributing to the reluctance to cut present consumption in order to save for retirement in the future is myopia (Benartzi, 2012). A myopic decision-maker frames decisions narrowly, and focuses on short-term decisions instead of on long-term plans (Guo & Finke, 2018; Thaler, Tversky, Kahneman, & Schwart, 1997).

The phenomenon of individuals giving more attention to their present needs, also referred to as "present bias," is a well-established aspect of human behavior, already known to the ancient Greeks. In the 1960s and 1970s, different discounting formulations (hyperbolic discounting and time inconsistent preferences) were developed to describe and quantify the extent of present bias in individuals making intertemporal choices (O'Donoghue & Rabin, 2015).

Present bias stems from the different ways in which individuals experience and process information relating to the present and the future. The present has a much stronger voice to get the attention of the individual. The temptation to satisfy short-term needs is everywhere and experienced by the individual as an emotional issue. The claims of long-term needs are experienced by the individual through thought, and have a much weaker voice (Shefrin, 2002).

The way an individual processes information about the present and the future also differs. It is as if individuals facing intertemporal choices experience this as the interaction between two parts of their personality; a far-sighted "planner" who maximizes over the long term, and a myopic "doer" who focuses more strongly on the present. These represent two energy systems within the same individual that have some degree of independence from each other (Thaler, 2016; Thaler & Shefrin, 1981). As a result of present bias, many people find it difficult to bring events or scenarios at some point in the distant future (such as retirement) into clear focus now (the present). It is thus important for financial planners to create a decision-making environment that will allow their clients to make the best possible choice in the present about the distant future.

Framing Effects. The second behavioral factor we consider in the present article is the effects of framing. In developing their prospect theory, Kahneman and Tversky (1979) observed that the preference order of choice options (prospects) does not stay consistent across various presentations of the choice. The reference point from which a financial problem is presented (or the "frame") affects the response of the decision-maker. An example would be where a loss-averse individual, when faced with a problem framed as a loss, would be more inclined to engage in risk-taking behavior to avoid the loss (Tversky & Kahneman, 1981).

Several studies show that behavioral biases and heuristics can, to some extent, be compensated for by framing the problem in an appropriate way. The solution to the retirement savings crisis may be as simple as using the findings from behavioral finance research to "nudge" investors into making more appropriate provisions (Benartzi & Thaler, 2013; Merton, 2014; Thaler & Sunstein, 2008; Yeske & Buie, 2014). A prime example of this "nudging" is the Save More Tomorrow (SMarT) program described by Thaler and Benartzi (2004), which addresses behavioral issues such as self-control, procrastination, and status quo bias.

With this program, individuals are encouraged to commit in advance to increasing their savings rate in the future, when they receive a raise. The authors reported evidence of increased participation in employer-based retirement funds, as well as increased contribution rates, with the implementation of their program.

We contribute to the literature by proposing an alternative method for financial planners to frame retirement planning solutions to their clients that can counteract the negative impact of behavioral factors.

The Sustainable Lifestyle Level Approach
Reframing the Retirement Savings Decision

We suggest reframing the retirement savings decision from saving for some future goal to finding a lifestyle the individual can afford to maintain in the present while at the same time saving enough to maintain this lifestyle during

retirement. We call this the SLL. By framing the question in this way, we are turning the focus away from the needs in the future (which clients often find difficult to visualize) to an emphasis on their present income and consumption. It moves the decision criteria to the present, thus giving retirement a stronger "voice" in this decision. By presenting the decision in this way, we aim to empower individuals to take decisions that would lead to better outcomes in the future.

We suggest that the estimated SLL should be the focus of the interaction between the financial planner and their client. If the client's present consumption level is higher than the SLL, then clients should be encouraged to decrease their consumption level by making changes to their lifestyle in the present. The discussion, and the consequent remedial action that might be needed, therefore focuses on the present, and does not start with estimating the client's needs many years from now.

Framing the retirement savings decision in terms of the SLL level is an example of what is known as "choice architecture." Choice architecture frames choices in such a way that it nudges individuals toward what is accepted as the better choice. But choice architecture is not without its criticism. The major criticism against this practice is that policymakers cannot claim to know what an individual's true interests are, and therefore they cannot claim to implement nudges that allow individuals to make optimal decisions. This contention leads some critics to question the ethics of nudging individuals to make decisions based on choices that were essentially made for them by external parties who do not know what their true preferences are (White, 2017).

By promoting the use of the SLL to frame the retirement savings decision, we are not, as Thaler and Sunstein (2008) put is, "banning the fruit": we are simply "putting the fruit at eye level" (p. 6). The individual can still choose whether they want to save for retirement, and to what extent. We simply propose presenting the choice and its implications in a way that is easy for the individual to understand and visualize. We thus bring the far-off scenario of what retirement will look like into the present—that is, what retirement income will look like in today's terms.

Development of a Model to Estimate the Sustainable Lifestyle Level

Various approaches can be followed to estimate the SLL. One approach could be to undertake a detailed forecast of anticipated income received by the individual over their remaining working life, anticipated extraordinary inflows, or expenditures that are not considered to form part of funding the normal lifestyle, and the anticipated investment returns on the amounts saved for retirement. One could then solve for the SLL through a process of iteration. This would require detailed knowledge of the individual's financial circumstances and would provide an individualized answer. To explore general characteristics of the SLL, we introduce a general, simplified model below. This yields an equation that can be used to estimate an approximate SLL, and that could assist in focusing the discussion between the financial planner and their client.

The Sustainable Lifestyle Level Model

To explore the characteristics of the SLL, we introduce a model based on some simplifying general assumptions. We use this simplified model to provide an understanding of the factors that determine the SLL and their relationship to SLL levels. The results of this model can also be used as a first answer to guide the discussion between the financial planner and their client.

As a first approximation, we consider an employee who earns a fixed annual salary that will increase by the rate of inflation in nominal terms (and therefore remain constant in real terms) until the employee retires. We assume that the employee will stay in employment until retirement. As a simplifying assumption, we assume away taxes, both before and during retirement. The analysis can be expanded to incorporate specific tax regimes, but because of the many differences in specific tax rules applying to different individuals and in different contexts, this will have to be done on an individualized basis. The calculations require assumptions about returns generated on retirement savings and the income that employees will receive from their retirement savings during retirement. In the following illustrations, we use what we believe to be realistic assumptions to illustrate the basic relationships obtained from our model. The actual return forecasts and retirement income assumption to be used by a financial planner will depend on a specific context.

We develop an expression for calculating the SLL below. The detailed derivation of the basic relationships is shown in the derivation of SLL discussed earlier, and the derivation is available from the authors upon request. To determine the SLL, we consider a salaried employee who is currently k years old and plans to retire when they become z years old. The employee earns a current salary of SAL_k, saves a portion p of this salary for retirement, and uses the remainder $(1-p)$ to cover living expenses. The employee expects this salary to stay constant in real terms for the duration of their employment up to retirement, and plans to continue saving a portion p of this salary toward retirement.

The employee also has a balance (RET_k) of funds already saved for retirement. This balance is expected to increase in the subsequent $(z-k)$ years to retirement as a result of additional retirement savings and investment returns.

The employee expects a real annual rate of return of r on their retirement savings. The expected inflation rate is i.

At retirement, we assume that the employee will convert their total retirement savings into a constant lifetime income by purchasing a life annuity indexed to inflation. The life annuity rate is a_z, depending on the age at retirement as well as other factors.

The determination of the appropriate life annuity rate (a_z) falls outside the scope of this study. From our perspective, life annuity rates are set in the market, and depend on changing conditions, especially long-term interest rates. Once purchased, a life annuity presents an easily understandable risk-free solution during retirement. Our analysis does not depend on life annuities as the only solution. The rate (a_z) could also be viewed as the annual drawdown rate from an investment portfolio. Drawing from an investment (also referred to as "self-annuitization") introduces longevity risk, and a sensible drawdown rate, which forfeits the mortality credits that the clients obtain from their life annuity, is bound to be close to the life annuity rate. We are therefore of the opinion that a sensible life annuity rate will be appropriate for planning purposes; but other approaches to determine the rate at which the accumulated savings can be converted into retirement income could also be used.

Our analysis then proceeds as follows: We determine the total savings that will be available at retirement by taking into account the following variables: the funds already saved for retirement; the expected investment returns on this accumulated balance in the period leading up to retirement; the expected contributions that the employee will make to the retirement savings in the period up to retirement; and the expected investment returns on these contributions. From these calculations, we determine the annual income that the employee will receive in retirement from these savings and investment returns, all in terms of the variables mentioned earlier.

We calculate the income that the employee needs in retirement to finance their lifestyle at the same real level as the level financed by the portion that they consume from their current salary (also in terms of the variables mentioned in the preceding paragraph).

If the employee is on course to save sufficiently from their salary to finance a sustainable lifestyle, then the real value of the part of their salary they can retain to finance their lifestyle before retirement must be equal to the income that they have available to fund their lifestyle in retirement. Putting the expressions for these equal to each other and solving for p, we obtain (for full derivation):

$$p = \frac{1 - a_z \left(1 + r\right)^{(z-k)} \frac{RET_k}{SAL_k}}{1 + a_z \left[\frac{\left(1+r\right)^{(z-k)} - 1}{r} \right]}$$

The proportion of their salary (p) that the employee needs to save toward retirement in order to support a sustainable lifestyle therefore depends on only four variables

$(z-k)$	=	years to retirement
r	=	real annual investment return on retirement savings
a_z	=	the real annual rate of income from a life annuity received during retirement from the accumulated savings at retirement
$\dfrac{RET_k}{SAL_k}$	=	retirement savings already accumulated expressed as a multiple of an annual salary

The current (year k) SLL is then the proportion of the employee's salary that they do not have to save toward retirement, or:

$$\text{SLL}_k = (1 - p)\,\text{SAL}_k$$

What is clear from the derivation is that the inflation rate does not form part of the calculation. Provided that the investment returns and income rates are defined as real rates, the inflation rate drops from the final relationship.

It is also clear that the actual levels of both salary and savings are not important, but only the multiple of annual salary already saved for retirement (expressed as $\dfrac{\text{RET}_k}{\text{SAL}_k}$). Employees concerned about privacy do not have to disclose their actual annual earnings or accumulated savings to a financial planner, only the relationship between the two. The planner then has the ability to calculate what proportion of their salary they have to save toward retirement and what proportion they can spend on a lifestyle that they would be able to sustain for the remainder of their lives.

Characteristics of the Sustainable Lifestyle Level
We start by calculating the SLL for typical situations. In Table 1, we show how the SLL differs for employees depending on their age, and how much money they have already saved for retirement. For this illustration, all employees plan to retire at the age of 65, they receive a real return of 4% per year on their retirement savings up to retirement (r in the derivation of the SLL discussed earlier and presented), and they will receive a real annual income of 5.6% of their retirement savings balance during retirement (a_z in the derivation of SLL discussed earlier and presented). The estimate of 5.6% per year for a_z is used as a realistic real annuity rate for the purposes of the illustration, but would in practice depend on individual circumstances and interest rates at the time. The results are shown in Table 1.

The first row in Table 1 shows the SLL of employees who have not yet saved anything for retirement. It demonstrates that a 25-year old employee can spend 84% of their current income and still manage to save enough to fund this lifestyle into retirement. As employees get older, they need to save more and can spend less. Someone starting to save at the age of 45 years can spend 62% of their income, while someone starting at the age of 60 who wishes to retire at 65 can

only spend 2% of their income, and has to save the rest for retirement.

The final figure of 23% shows the strength of this analysis. If this is the situation in which employees find themselves, then this is their reality. They have to cut their standard of living now to the level that they can afford. The suggestion that consumption should be cut to 23% of income is a very harsh message; but in many instances it is not impossible to achieve. Even in these trying circumstances, the approach produces a plan of action that the client can follow to manage themselves out of trouble.

The other rows in the table show the advantage of having already accumulated a retirement savings balance. The more employees have already saved, the higher the amount that they can spend on a lifestyle they will be able to afford into retirement. An employee who is 45 years old and who has saved nothing can spend 62% of their salary; but if they have already accumulated a retirement savings balance of six times more than their salary, they can spend as much as 90% of their salary on a lifestyle that they will be able to afford up to and during retirement.

If, at the age of 45, an employee has accumulated a retirement savings balance of nine times more than their annual salary, they can spend their entire salary and will still have sufficient income in retirement to continue with their preretirement lifestyle. For someone in this position, the goal of simply saving to support a sustainable lifestyle would have been met (provided that the retirement savings are kept for retirement and are not spent beforehand, and provided that the return assumptions are met). For someone in this position, savings and investments will be for a different purpose.

The relationships presented in Table 1 are also illustrated graphically in Figure 1.

Figure 1 shows the retirement funds already accumulated (as a multiple of current salary) on the horizontal axis and the resulting SLL on the vertical axis. The relationships are shown for employees of different ages, all planning to retire when they are 65 years old. All the lines in the diagram have positive slopes that illustrate the intuitively obvious relationship: that the more one has already saved toward retirement, the more one can afford to consume now and still save enough for retirement. The lines for younger

TABLE 1. Sustainable Lifestyle Level (as a Percentage of Current Salary) for an Employee Retiring at 65 Years

Retirement Savings (Multiple of Annual Salary)	Current Age (Years)				
	25	35	45	55	60
0	84.2%	75.8%	62.5%	40.2%	23.3%
3	96.9%	89.0%	76.3%	55.1%	39.0%
6	a,b	a,b	90.1%	69.9%	54.6%
9	a,b	a,b	a,b	84.8%	70.3%
12	a,b	a,b	a,b	99.7%	89.0%

[a]Accumulated retirement savings sufficient to finance a sustainable lifestyle at the level of current salary. Further savings and investments desirable to reach other goals, but not to finance retirement at this level.
[b]The illustration assumes retirement at the age of 65, a return on retirement savings of 4% per year, and a real annual income of 5.6% of retirement savings during retirement.

Figure 1. Illustration of sustainable lifestyle level (as a percentage of current salary) for an employee retiring at 65 years.
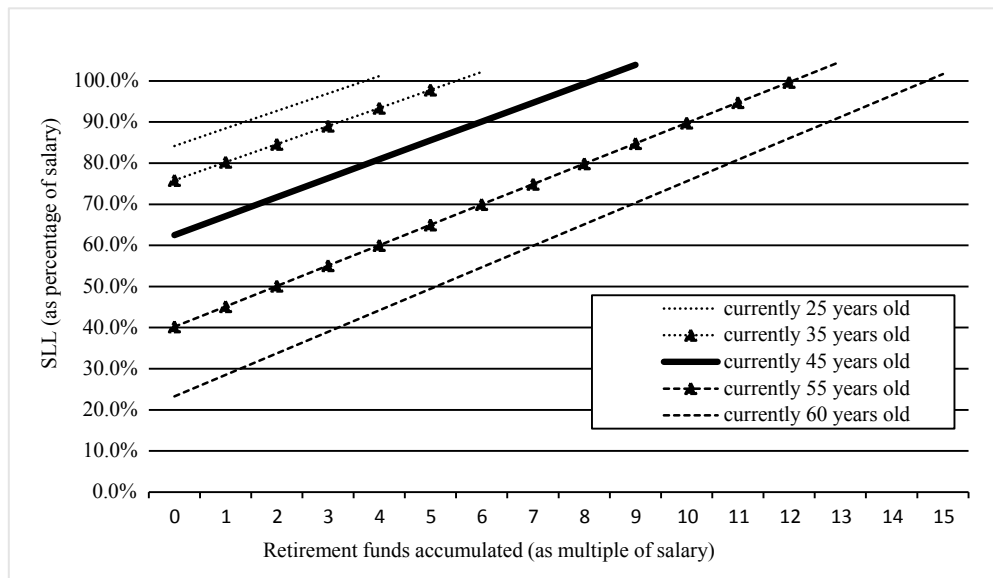
employees lie above those for older employees. If they have already saved the same amount toward retirement, younger employees can afford to consume more of their current salary. To reach a similar position (that is, consumption of their current salary), older employees need to have saved more. If they have not, they will simply have to "bite the bullet" in the present.

The worst scenario in the diagram is a 60-year old employee who has not yet saved anything, and who plans (or will be forced) to retire in 5 years' time. Someone in this position will have to learn to live off 23.3% of their current salary, or try to generate more income. Alternatively they could retire

later. There are other employees who may wish to retire earlier, and who believe that they have already saved enough to afford retirement. The effect of the retirement age on the SLL is presented in Table 2 and graphically illustrated in Figure 2.

Table 2 and Figure 2 clearly show that the earlier an employee retires, the lower their SLL will be. We assess the situation of an employee who is 45 years old and who is considering retirement at different ages. The resulting SLL depends on the amount that they have already saved toward retirement; but the general pattern is the same in all instances—namely, that the earlier they retire, the

TABLE 2. Sustainable Lifestyle Level (As a Percentage of Current salary) for an Employee Currently Aged 45 Years

Retirement Savings (Mmultiple of Aannual Salary)	Retirement Age (Years)				
	55	**60**	**65**	**70**	**75**
0	35.1%	49.5%	62.5%	73.0%	81.4%
3	48.1%	62.9%	76.3%	87.0%	95.5%
6	61.0%	76.3%	90.1%	a,b	a,b
9	74.0%	89.6%	a,b	a,b	a,b
12	87.0%	a,b	a,b	a,b	a,b

[a]Accumulated retirement savings sufficient to finance a sustainable lifestyle at the level of current salary. Further savings and investments desirable to reach other goals, but not to finance retirement at this level.
[b]The illustration assumes an employee currently aged 45 years, a return on retirement savings of 4% per year, and a real annual income of 4.5% during retirement (for retirement at 55 years); 4.9% (for retirement at 60 years); 5.6% (for retirement at 65 years); 6.5% (for retirement at 70 years); and 7.8% (for retirement at 75 years).

Figure 2. Illustration of sustainable lifestyle level (as percentage of current salary) for an employee currently aged 45 years.
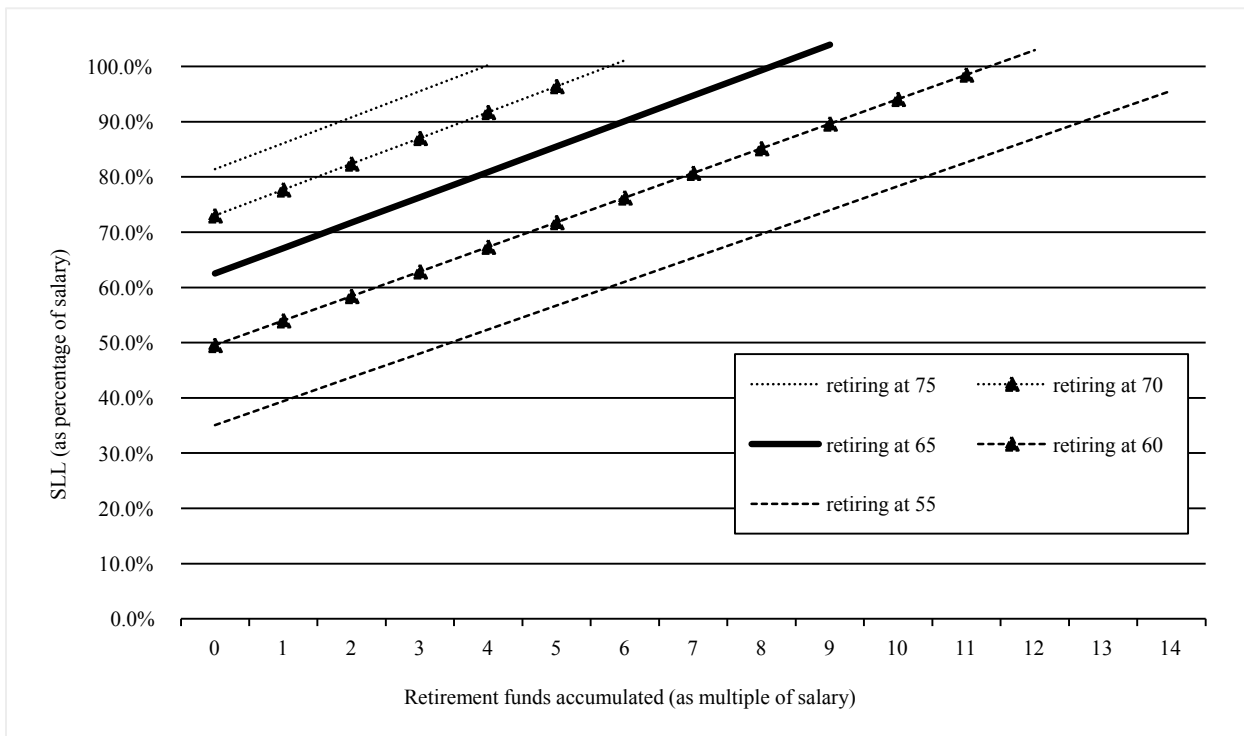
lower will be their SLL. If they saved three times their salary, they could spend only 48% of their salary if they wished to retire at 55; but they would be able to spend 95% of their salary if they were able to earn their salary up to the age of 75. If they planned to work to a more realistic retirement age of 65, they could spend 76% of their salary.

Practical Advantages and Limitations of the Sustainable Lifestyle Level Approach

Practical Advantages

If a financial planner focused on the SLL in their consultations with a client, this could have a number of practical advantages. The first is that this approach presents the client with the reality of the extent of the retirement planning

challenge in such a way that it does not depend on the client's expectations or preferences. The SLL approach focuses on the present, and moves away from the need for the client to visualize themselves in their retirement years, which might be many years into the future. As outlined earlier, many individuals find their future circumstances difficult to picture and easy to deny (Benartzi, 2012). Using the SLL approach therefore mitigates the possible impact of present bias on the retirement savings decision.

The second practical advantage is that the SLL is easy to communicate. The SLL is the lifestyle that the client can afford now and in the future. The answer presents clients with an easily understandable call to action: they have to either reduce their standard of lifestyle to the level they can afford now, or postpone the hard lessons to the future when they may be forced to reduce their standard of lifestyle even further.

The third practical advantage of SLL is that its basic calculations require little input from the client, and that the calculations can be automated very easily. A pension plan will have all the information required to calculate the SLL for all their members, and can communicate this to the members periodically. The only important unknown factor is the amount a member may already have saved for retirement apart from the pension plan. The pension plan may include an option on their website for a client to provide this input whilst also providing an amended SLL to members on request.

Focusing on the SLL also makes it possible to advise clients who are concerned about their privacy and who do not want to share their personal information with a financial planner. To calculate the SLL so that it can serve as a starting point for discussion, the financial planner only needs to know how far the client is from retirement, and what multiple of their salary they have already saved toward retirement. In other words, the client does not even have to disclose their actual salary level to the financial planner.

In practice, applying the SLL for financial planning purposes will necessarily be a dynamic process. The SLL will change when the client experiences a real change in salary, when investment returns differ from what was expected, or when return expectations change. Each change in the SLL in turn will create an opportunity for an employer or financial planner to assist an employee to engage with their own individual pension provision challenge.

Limitations

The first obvious limitation of the SLL approach is that, whilst it provides an alternative way of communicating with clients, it does not provide a direct solution that will ensure sufficient retirement savings. If individuals are not saving enough for retirement, they will just have to save more (or experience a decline in their lifestyle in retirement). The success of the SLL approach will depend on whether it communicates the retirement savings challenge better than the conventional approach of saving-for-retirement goals, and, through that, lead to better retirement outcomes.

The model that we have proposed to estimate the SLL is limited by the simplifying assumptions on which it is based. The first limitation is that the model does not allow for tax, and does therefore not account for the fact that different income streams could be taxed at different rates. Neither does it account for the tax incentives that exist in many jurisdictions to encourage employees to save for retirement. For a more accurate estimate of the SLL, these tax effects would have to be taken into account, but—being very specific to the rules applying to each individual—this would fall outside of the scope of a general introduction of the concept as presented here.

One common system of tax incentives for retirement saving is to provide an income tax cut for retirement savings contributions, tax-free income in an approved retirement savings fund, and then collecting tax on the retirement income as it is received from the individual from the retirement savings fund. The tax paid by the individual preretirement would then be based on their income less retirement contributions. If this net amount is at the SSL, this will also be the income that the individual will receive in retirement. If tax rates are the same before and after retirement, the tax paid will be the same. If the SSL is reached on a before-tax basis, this will therefore also mean that the SSL has been reached on an after-tax basis. In this instance, the formula describing the proportion of an employee's salary (p) required as contribution to retirement savings to reach the SSL therefore provides a good approximation.

A further limitation of the basic model presented here is that it does not incorporate income from other sources. These could be additional savings outside of the pension fund, or other forms of retirement income (Social Security or a DB plan). The model would have to be extended to allow for these income streams, because they will raise the SSL by adding income in retirement.

The basic SSL analysis assumes that a constant real income is required to fund a sustainable lifestyle over an employee's lifetime. However, people undertake various expenditures that are not constant over their lifetime. Examples are the cost of financing a primary residence, with which many households struggle for a period until the mortgage has been paid off. A similar large cost that many families have to provide for a long period of time is their children's college education. Further costs that many may face later in life are increased medical expenses. An extended model can consider how these costs that vary over an individual's lifetime can best be incorporated into the SLL analysis.

Finally, there is the possibility of considering alternative forms of financing when planning for a sustainable lifestyle. A reverse mortgage that uses the equity in the family home to borrow money to finance retirement could be one of these options. This option raises the question: How can the purchase of a family home with borrowed funds, paying off this mortgage, and eventually borrowing against the asset later in life be incorporated into a sustainable lifestyle model that spans a lifetime? The basic model presented here would have to be extended if this were to be incorporated.

Implications for Practitioners

Focusing on the SLL provides a new way to frame the retirement savings challenge. We have created a simple formula to determine the SLL. Professional financial planners and counselors can use SLL as the framework for consulting with clients about retirement. The client only has to provide details of their current savings as a multiple of current salary, their age, and when they plan to retire. The practitioner has to estimate the expected investment return and the life annuity rate at retirement. With the SLL approach financial planners can offer their clients a simple answer with an immediate policy implication, which is to reduce household consumption to the SLL.

As highlighted earlier, the SLL focuses on the present (how much one can afford to spend now) and not on the future (what one needs at retirement). Using the SLL will assist practitioners in their communication with those clients who have present bias, and eliminate the need to start the discussion with the client having to visualize themselves in retirement to determine their retirement needs.

The calculation of the SLL can be automated. A pension plan will have the required information available to calculate the SLL for their members and to communicate this estimate to them regularly. Pension plans can use SLL as a basis for electronic calculation tools made available to members. Members should be encouraged to input additional information, such as savings accumulated outside the pension plan, for more accurate results. Bi, Finke, and Huston (2017) found a positive relationship between the use of retirement planning financial software and higher retirement savings.

We have derived a formula to calculate the SLL given some general simplifying assumptions. The derivation assumes that the client has one income and is contributing to a single retirement savings fund. In practice, the client could be contributing to more than one retirement savings vehicle or may have accumulated credits to more than one fund. The practitioner must then aggregate the contributions and credits to different funds, and estimate the average return on the aggregated funds to apply to the SLL formula.

There is no magic answer to meet the retirement conundrum. To overcome a possible shortfall, employees on a fixed income have to reduce their current consumption levels and save more toward retirement. The challenge essentially remains the same, whether one uses the SLL approach or other established procedures. But by framing the retirement savings decision differently—in other words, by presenting the answer as the consumption level one can afford now instead of focusing on savings required to meet difficult-to-imagine needs in the future—this approach can mitigate the effects of behavioral biases that are currently preventing many employees from saving sufficiently for their future retirement.

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