SAVING THE NEXT BILLION FROM OLD AGE POVERTY

global lessons for local action

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PAYING THE PENSION: **MARKETS, PRODUCTS AND CHOICES**

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INTRODUCTION

This chapter looks at when to retire, developing effective market structures and retirement income products and the different options for those products. The discussion is focused on achieving the best long run outcomes for the pension system and its members. How can broad coverage of adequate income in old age be delivered in a way that is sustainable, secure and efficient? The chapter also aims to integrate the insights for the payout phase from other parts of this book. The insights to improve and make more efficient the process of joining, contributing and investing in the accumulation phase have very direct parallels for the payout phase. If costs can be dramatically reduced and the benefits of digital financial inclusion used to expand coverage of pensions, these same insights may help new or better ways to deliver retirement income.

The chapter also highlights considerations related to allowing withdrawals from pension assets before retirement – and to setting the age at which people can gain access to their assets. Whilst advice to push this age later in most countries is well-taken, it is important to address the frequent (if misplaced) concern that raising retirement ages will reduce employment for younger workers as older workers keep 'their' jobs for longer.

It is only when the benefits are paid or accumulated assets are drawn down that the key objectives of the retirement system are truly fulfilled. Accumulating assets may have many benefits but it is only the retirement income that people draw that creates the possibility of greater financial security and well-being for the aged with greater stability in consumption patterns. For the low-income in many countries this will not initially be the 'traditional' hope for a fixed retirement from age 60 or 65 until death – it may initially be more realistic to think of it as buying retirement one year at a time. The challenge of delivering income and consumption in old age is ideally tackled by taking multiple slices of income, however small, and adding them to make something meaningful. A basic payment from the government that alleviates poverty is important. But people need strategies to apply when such a 'zero pillar' does not exist, or government payment is below the poverty line. For governments faced with ever-expanding populations at older ages, the clear lesson from successes and failures in developed countries is the need to create a diversified system with multiple sources of income in old-age to avoid unsustainable fiscal burdens or unacceptably low total incomes for the older segments of the population.

Many retirement systems around the world have been reformed in the past 30 years. So they often still have little experience with the payouts provided by their current framework, particularly the private and/or funded parts. Even in countries with many decades of experience approaches to the payout phase are still evolving – not least in response to persistence of very low interest rates for nearly a decade since the global financial crisis. Behavioural issues, the right market structure to maximize the benefit providers can deliver for members, governance, investment strategies and technology all play important roles in the payout (decumulation) phase just as they do when members are accumulating their benefits.

A system can have good coverage during the contributory phase, but if the assets are paid in lump sums which are spent rapidly, effective coverage will be poor. High costs for decumulation products reduce financial efficiency and therefore make adequacy more difficult to achieve. Barriers to drawing pensions while continuing to work may increase the burden on the pension system and impact labour market efficiency as well. The security of retirement income streams will vary depending on whether payouts are insured, uninsured from the government or uninsured from financial institutions or employers. Risk-sharing arrangements which adjust benefits based on investment or mortality experience may improve sustainability but compromise adequacy.

There are a number of issues and questions to address to maximize achievement of the retirement system's objectives, including:

- What is the policy on early withdrawals in the light of the impact on final balances?
- When should members be able to start their retirement payouts?
- What market structure, entity or entities should be involved in payouts?
- Should payments be made as annuities, lump sums or systematic withdrawals?
- Will income options keep pace with inflation?
- Will annuities be insured or paid directly from a fund or tax revenue?
- How will retirement income payments be taxed?
- How should assets be invested during the retirement phase?
- Will longevity risk be borne by government (taxpayers), members or financial institutions?

WITHDRAWING MONEY **BEFORE RETIREMENT**

Withdrawing assets before retirement obviously reduces retirement income but offering early withdrawals is usually justified by the idea that more individuals will contribute more money if they know that, that option exists. There is not a lot of evidence that this behavioural response exists – indeed as highlighted in Chapter 3 regarding auto-enrolment in the U.K. and in numerous studies, people do not make classically 'rational' economic decisions regarding putting money into a pension compared to other uses. However, for low-income people the ability to access the funds will be a real concern. This raises the dilemma that allowing access may be needed to get people to enter the system in the first place, but that using access to draw down the assets means that the policy objective of creating assets for retirement income is achieved at a lower level. One potentially interesting approach to this dilemma is to allow pension assets to be used as collateral for small short-term hardship loans that must be paid back. This gives people the reassurance their assets can be useful to them if there is a short-run emergency but makes it more

likely that the money will be repaid. In theory it may make more sense to withdraw assets and avoid any interest rate on a loan. However, there is evidence that the loan is likely to be paid back, leaving the assets untouched, whereas people are less likely to raise their future contributions to make up for the withdrawal – an idea that has been popularized by, among others, Microsave.[1]

WHEN IS IT **TIME TO RETIRE?**

Ideally the payout phase can begin once a member has accumulated enough savings or benefit to have adequate income during the full period of retirement. For many in developing countries the stark fact is that the current choice is between working until ill health or death intervenes and suffering poverty. So 'retirement' is a more flexible concept. However, this current necessity may help to avoid a critical mistake in many developed country retirement systems where retirement becomes an all or nothing decision. This makes it difficult for countries to adapt to rising longevity – unless the retirement age is linked to life expectancy in legislation, which is ideal. It also reduces the total years for accumulation and reduces the labour market participation of older workers. The target population in many developing countries will be in the informal sector where it is a challenge to make sufficient contributions over a career, which will certainly include years where no contributions are possible, with changes in occupation, income level and different regions.

Despite this unpredictable labour market participation, a focus on target income levels can be an important consideration in the design of a system. Popular approaches to determining appropriate target income include:

- Replacement rate targets (e.g. 80% pre-retirement income)[2]
- A nominal level of income or one linked to a national poverty line – and determined with other sources of income taken into account including from government pensions.
- Rules of thumb for safe spending such as spending x% of savings (x is typically 3% - 5%), or spending age-divided-by-x % of savings (x is typically between 10 and 20 so that one spends 5% at 50, 6% at 60 and so on), or savings equal to X * pre-retirement income (X is typically 20 to 35 although may be lower in developing countries). [point to literature on spending guidelines][3]

Another consideration is whether or not a member may continue working while receiving income from the system and, if so, whether the amount of retirement income is to be coordinated with the amount of working income. Phasing out of work over time and

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1 Microsave is an international financial inclusion consulting firm that aims to develop 'market led solutions for financial services' – see www.microsave.net

2 See for example AON Consulting's Replacement Ratio Study, 2008 prepared in cooperation with Georgia State University

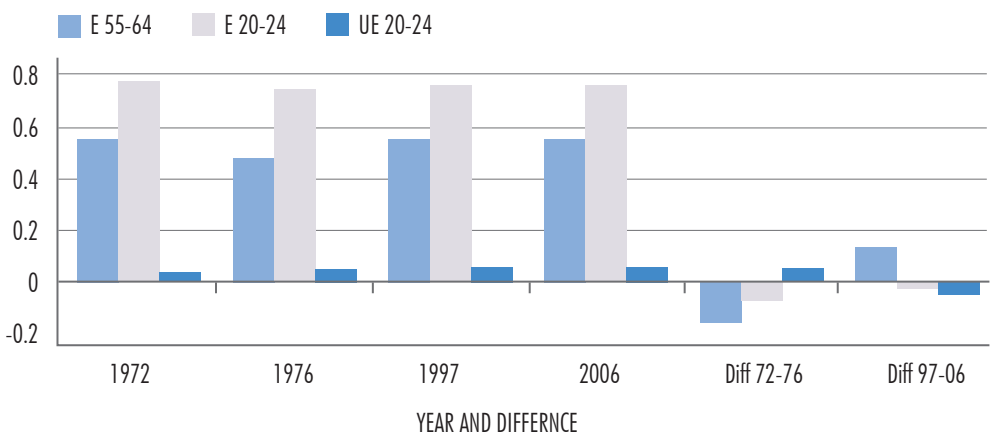
3 See for example The Feel Free Retirement Spending Strategy, Inglis, 2016

phasing in use of savings, even if small, greatly simplifies the old age income equation. It also helps to align decreasing workloads with declining health. Particularly in developing countries where people may have access to a small amount of land to grow basic necessities, this mixed approach to delivering consumption has significant advantages over the 'traditional' approach of retiring at 60 or 65 which then requires savings or accrued rights to fully fund an individual's remaining lifetime.

One issue that causes resistance to raising retirement ages is the fear that doing so will increase unemployment for the young population as older workers keep their jobs longer. Incentives to retire and increasing the retirement age do impact the employment rate of older workers, but unfortunately do not actually boost to youth employment. Countries with lower employment for higher ages, typically have lower employment for the young as well.[4] There is a wealth of evidence on the issue – known as the 'lump of labour' fallacy - in the economics literature. The same phenomenon also holds, for example, in relation to (increasing) female employment. In other words, increasing female employment does not reduce male employment, as labour markets that are effective see higher employment for all groups. Figure 20.1 shows one example from the literature based on a case study of reforms over a 40-year period in Germany to encourage early retirement – which was successful - with the aim of increasing youth employment – which was unsuccessful. When later reforms reversed course on retirement age, employment for both groups improved – reversing the early declines.

Figure 20.1

Changes in employment rates for old and young workers and youth unemployment rates in Germany 1972 to 2006



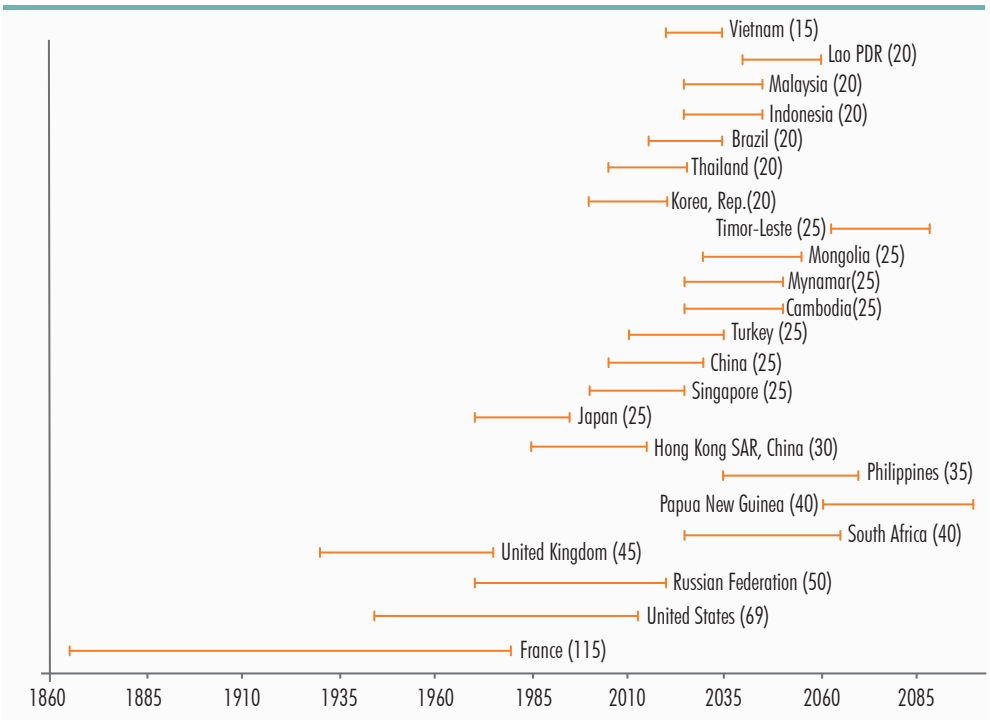
It is a truism that life expectancy is rising rapidly almost everywhere – but the numbers faced by some developing countries are quite remarkable. Figure 20.2 shows how rapidly different countries moved those aged 65+ being 7% of the population to 14% of the

[4] Gruber, J., Milligan, K., and Wise, D. (2009) "Social Security Programs and Retirement Around the World: The Relationship to Youth Employment, Introduction and Summary" NBER Working Paper No. 14647, 2009, Cambridge. MA.

population. As the chart shows, this change is now happening over 20 years while it took place over 50 or even 100 years in many European countries. This reflects positive developments but is also one that adds significant challenges for pension and retirement income solutions

Figure 20.2

Years for age 65+ share of population to move from 7% to 14%



Sources: World Bank estimates based on data from UN 2013 and He 2009.
Note: Figure shows starting and ending year for transition from 7% (aging) to 14% (aged) of population ages 65 and older. Aging and aged thresholds are based on United Nations definitions. East Asia and Pacific economies rounded to five-year increments.

One constant need for making informed choices amongst the options presented below is better data on mortality. In countries with no insured annuity market, appropriate actuarial tables for mortality may not be available. Even though tables used for life insurance may be helpful, mortality experience will be lower for those receiving annuities than for those receiving life insurance. Tables from other countries can be used for an interim period while local experience data is built up. For example, Chile used U.S. mortality tables when they established their system in the 1980's. Another adaptation is the Swedish approach to adjusting benefits gradually as experience develops for population-wide mortality experience. Chapter 2 describes Kenya's efforts to proactively improve the data and other countries have also undertaken similar initiatives.

Good mortality data is vital, not only for the population as a whole but also for particular groups. This enables accurate pricing of annuities for different groups, based on health or income for example, which makes annuities more cost effective and more attractive to

retirees. Annuities priced based on population mortality will tend to be regressive – those with higher incomes, who also live longer, will get the most value from purchasing them. Indeed, the situation is compounded if annuity providers offer better pricing for larger balances, which also favours the well-to-do. This is particularly important in developing countries which often have far higher levels of inequality than the markets that were pioneers in the development of annuities.

HOW TO DELIVER RETIREMENT INCOME PRODUCTS

Other chapters have focused on the significance of market structures. Who will help the member join the system? Who will collect the contributions? How will the accounts be administered and who will invest the assets? The answers to these questions are profoundly important to the outcomes. Chapter 17 on governance and investment and Chapter 18 on costs explain why it is vitally important to focus on generating scale, expertise and good governance in the management of the pension assets. These market structure issues are just as important for the payout phase, but typically receive less attention. Some countries have seen important innovations such as the introduction of the 'SCOMP' auction system in Chile. Even countries that have created very powerful pro-member market structures, such as in India's NPS, the advantages of the large-scale default investment funds under contracts negotiated on the members' behalf is not replicated in the payout stage. Instead, individuals currently need to understand complex products and choose from amongst competing providers.

These market structure issues are just as important as decisions about the choice of products. Individuals can always be given choices, but as with the accumulation phase there is a great deal of value in a simple default pathway for the member who does not want to make an active choice at retirement. Part of the issue is that modern evolution toward Defined Contribution plans has encouraged more choice in payout options. Under many defined benefit plans the payout was, as the name suggests, defined. The member simply received their pension until they died. Defined benefit plans paid life annuities, with a range of practice as to whether these fixed amounts, increased at a fixed percentage, increased with investment return, or guaranteed to increase with a the rate of inflation. The advantages and disadvantages to a structure providing choice or one providing defined default payouts are important to understanding the overall value of the pension promise.[5] In countries where it is possible for members to transfer from a Defined Benefit pension to a Defined Contribution pension it is important to have clear regulations and good practice so that members understand what they may be trading away or giving up.[6]

It is the shift to Defined Contribution pension plans in many countries that creates the need to focus so clearly on the payout phase. To be sure some traditional 'Defined Benefit'

[5] Hoevenaars, R., Kocken, T., and Ponds., E (2009) "Pricing Risk in Corporate Pension Plans: Understanding the Real Pension Deal" Netspar, Netherlands, 2009

[6] TPR (2015) "Regulatory guidance DB to DC transfers and conversions" The Pensions Regulator, U.K. April 2015

plans would pay out the full value of the pension in a lump-sum at retirement – for example as seen in Egypt[7] and other countries. But at the heart of most Defined Benefit plans is the ambition to pay an income for the lifetime of a retiree. Defined Contribution plans, by design, often separate the structures for decumulation and accumulation. This makes the accumulation phase easier to administer, but it means that the decumulation phase has to be explicitly added. This full design of this element has typically lagged the development of the accumulation phase.[8] Annuity payouts may be described as part of the system design but the fact that this is written in the law does not create the market that enables the actual production and sales of annuities. As highlighted in Chapter 5 on Turkey for example, the legislation and practical underpinnings for an annuity payout have only developed in recent years despite the individual pension system being in existence for nearly 15 years.

Enabling the advantages of large scale to individuals in the system is an important consideration. The payout option can be delivered from large scale pension fund(s) used for accumulation – as with many large employer based plans. Auction mechanisms can be used where private providers compete to provide payout products for groups of workers. This provides individual members, or those working for small firms, with buying power that otherwise benefit the wealthy or those who work for large employers. Improving scale can allow lower income workers to access an insured annuity in a cost-effective manner due to the benefits of group pricing. Tackling fixed administrative and sales costs associated with individual retail options makes insured annuities more financially efficient for a broader group of workers.

These cost effective solutions mimic good practice in the accumulation stage. Reducing the number of options not only makes it less challenging for members to make informed choices, but it should reduce the cost of providing annuities for annuity providers. Typically, 3-4 different annuity options can cover the diverse needs of retirees. Ideally there is a default option for the payout just as there is for investment options in the accumulation phase. In addition to limiting the number of options, standardizing the contract provisions such that products and prices can be compared on an "apples-to-apples" basis is important. Cost is reduced by reducing the need for extensive marketing and product development efforts.

Finding the best supplier can be done via electronic market places. In addition to SCOMP in Chile there is an electronic quotation system in operation in Mexico. In other markets, the trustees of large pension plans run auctions or tenders among potential suppliers to deliver annuities as a bulk contract – for example in the U.K. or Canada. Developing countries are at no particular disadvantage in this area. The bulk auction approach is used in India for the accumulation phase, in Kosovo there are tenders for the mandates in the accumulation phase and in Malaysia the Employees Provident Fund runs a bulk investment capability to implement a standardized investment strategy. The real issue is that such

[7] See www.efsa.gov.eg

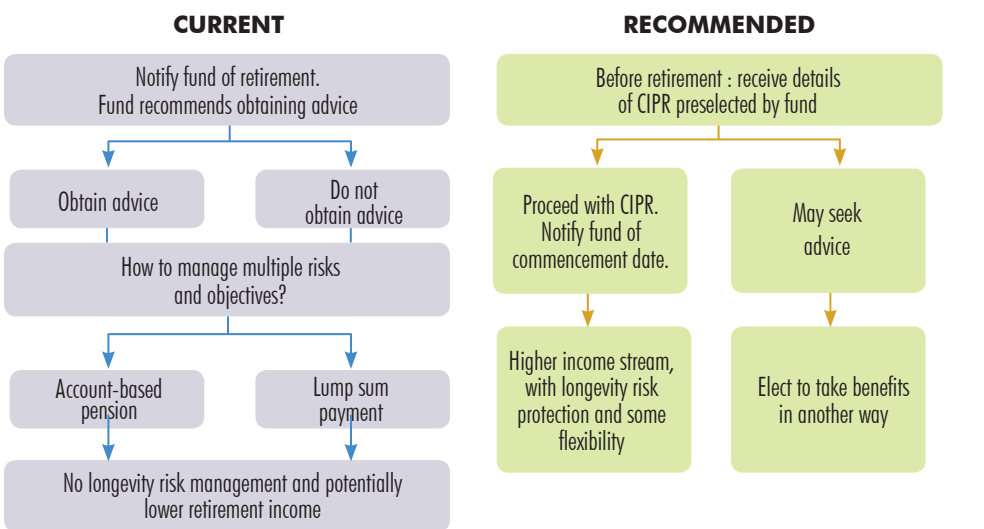
[8] Rocha, R., D. Vittas, and H.P. Rudolph. 2011. "Annuities and Other Retirement Products: Designing the Payout Phase." World Bank, Washington, DC

approaches have typically only been implemented for the accumulation phase even though they are just as important for decumulation.

Another source of cost or price efficiency can come from mandatory annuitization. When annuitization is mandatory annuity prices are not impacted by adverse selection. Adverse selection arises when only those who expect to live longer buy annuities, forcing the price of the annuity up to account for the longer-than-average lifetime of those who are purchasing them. This effect can be on the order of 10%[9] of the cost of a typical retirement annuity. In addition, mandatory annuitization enhances the impact of economies of scale which reduce administrative and sales costs.

An example of a country considering replicating the insights from accumulation in the payout phase is Australia. Figure 20.3 shows the existing model for the very limited involvement of pension funds ("superannuation" funds) in an individual's transition from accumulation to payout phase. The recommendation from a recent authoritative report is for the superannuation fund trustees to select a default Comprehensive Income Product for Retirement or 'CIPR'. Choice would still be allowed for members that want it, but as with the accumulation phase there would be a default option selected by trustees acting in the member interest. This option works well because of the large scale of the typical superannuation fund and the strong focus on governance from the regulator and supervisor APRA. The model depends on having institutions with scale, expertise and good governance to deliver the best outcomes, just as in the accumulation phase.

Figure 20.3
Recommended change to retirement advice model in Australia



Source: Financial System Inquiry: Final Report November 2014, Commonwealth of Australia

[9] Adverse Selection in the Annuities Market and the Impact of Privatizing Social Security, Jan Walliser, The Scandinavian Journal of Economics, September 2000

The financial efficiency of annuities, often labelled the 'mortality credit' or pooling benefit, allows more income to be delivered to a large pool of individuals than if the individuals try to create their own income stream from their savings. This is illustrated in Table 20.1 below comparing different types of Comprehensive Retirement Income Products with a common drawdown from a personal account. The potential benefit of the approach was shown in an experiment illustrating the impact of setting a default for the retirement phase.[10] The power of defaults is well known and acknowledged in the accumulation phase.

Table 20.1

Comprehensive Income Products for Retirement compared to individual account draw-down

For a 65-year-old male with a USD 400,000 accumulated balance (excluded Age pensions)

	Expected income throughout retirement (NPV)	Increase over account-based pension	Increase over account-based pension
Account-based pension drawn down at minimum rates	$ 275,000	-	-
CIPR 1	$ 314,000	$ 40,000	14%
CIPR 2	$ 357,000	$ 82,000	30%
CIPR 3	$ 359,000	$ 85,000	31%

Source: Australian Government Actuary Modelling for the Financial Systems Inquiry Final Report November 2014, Commonwealth of Australia.

PRODUCT OPTIONS: FROM ANNUITIES TO **DRAWDOWN TO RULES OF THUMB**

The next section reviews some of the main options for how to turn the stock of pension assets into an income. It starts with annuities and then looks at systematic or phased withdrawals and rules of thumb. The aim is to provide a brief summary of some key issues and provide some simple but practical approaches that work when the option to annuitize income effectively is not available. The literature on this area is vast, and the interested reader should supplement this chapter with the reviews of product options found for example in Rocha and others (2011) and Mitchell and others (2011) cited below. The chapter does not focus extensively on the supervisory issues in relation to payouts as these are treated in Chapter 21 on Regulation and Supervision.

[10] Bateman, H, Eckert, C, Iskhakov, F, Louviere, J, Satchell, S and Thorp, S 2013, Default and 1/N Heuristics in Annuity Choice, School of Risk and Actuarial Studies Working Paper 2014/1.

PAYOUT STRUCTURES

Most payout systems will need to use a combination of different types of payouts to meet the diverse needs of retirees. One key issue is that savings cannot be paid systematically or as an annuity until a certain level of scale has been achieved. Minimizing the impact of the need for large scale in the payout phased is one key goal for any system. Table 20.2 shows the basic hierarchy of payouts from very small payouts where a lump sum is the only practical solution to annuities as the most desirable form of payout, but with the freedom to annuity income plus additional amounts as a lump sum to members who have very high levels of savings.

Table 20.2
Linking saving amounts to most effective payout option

Savings level	Payment approach	Comments
Very low	Lump sum	Cost of systematic payouts or annuity is too high
Low	Systematic payments	Cost of annuity is too high
High	Annuity	Most secure and cost-efficient mechanism
Very high	Annuity + lump sum	Once basic needs are secured, a lump sum payment provides spending flexibility and reduces longevity risk in the system

ANNUITY INCOME

Perhaps the most important issue to address regarding payouts is whether and how to make annuity payments – payments that are guaranteed to be made for the life of the member.[11] Annuity income has several advantages, including:

- Financial efficiency – more retirement income can be delivered for each dollar contributed to the system because the "savings" that result from ending payments to those who die earlier can be used to fund the extra payments needed for those who live longer lives. Those who live longer earn "mortality credits" from those who die earlier. In actuarial terms, longevity risk is pooled and this enables each member to achieve retirement security for a lower cost. The financial efficiency gained from longevity pooling has been estimated at 15 – 25%.[12]

[11] The term "annuity" is not used in the same way in every country. In some countries products that provide a way to accumulate assets to be taken as a lump sum when the person retires are called annuities. In other countries a lump sum payout would indicate the opposite of an annuity which is thought of as a stream of income payments. In this chapter we link the payout category to the income stream it creates – hence an annuity pays an income until death in the standard form and a phased or systematic withdrawal allows periodic payments but no guarantee of income until death.

[12] Longevity Risk Pooling – Opportunities to Increase Retirement Security, Daniel Bauer, 2017

- Higher levels of spending – from an individual's standpoint, higher spending levels can be maintained since there is no fear of running out of money due to living longer than expected.
- Consumption – from a policy standpoint, more stable consumption or higher levels of spending may be achieved with consequent benefits for the economy.
- Members are relieved of the burden of managing both spending and investments during retirement, which is likely to be especially beneficial if at older ages when the willingness and/or intellectual capacity to deal with such risks declines.

However, annuities also have a number of disadvantages.

- Illiquidity - the stream of income may be viewed negatively by members who prefer the full value of retirement savings available for spending objectives such as starting a business to provide retirement income, paying off debt, supporting children, or passing on a bequest after death. On the other hand knowing that a lump sum is available in the future may make people less likely to properly provision for these expenses, and encourage excessive borrowing by parents or their children.
- Availability of funds - in some countries the economic benefits attributable to having retirement funds immediately available may outweigh the benefits of more stable levels of spending.
- High cost - insured annuities are seen as 'expensive' since even if they are competitively priced with reasonable profits annuities include additional costs that an insurer must charge to offset the longevity and investment risk they have taken on, including a regulatory requirement for capital.
- Inefficient markets - insured annuities are expensive when the market is not efficient - weak competition, excessive profits or sales costs, complex products and mis-selling linked to commissions may all contribute to higher cost annuities.[13,14]
- Regressive distribution of wealth – because those with low incomes are likely to live shorter lives than those on higher incomes, annuity income may be viewed as inequitable. In this case the annuity product is regressive. This reinforces the importance of accurate mortality tables for the appropriate populations as highlighted in Chapter 2 on Kenya.

RISKS AND GOVERNMENT GUARANTEES

Annuities are the major product that insures an individual against longevity risk – the potential that a retiree lives longer than expected so that retirement savings are depleted while the retiree is still living. Governments may intervene and reduce or eliminate the risks some of the key retirement risks, but consideration must be given to the potential cost of this kind of guarantee.

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[13] Harrison, D. (2012) "Treating DC scheme members fairly in retirement?" Pension Institute and National Association of Pension Funds, U.K., 2012

[14] Government of India (2015) "Report of the Committee to recommend measures for curbing mis-selling and rationalising distribution incentives in financial products", Ministry of Finance, Government of India, India 2015

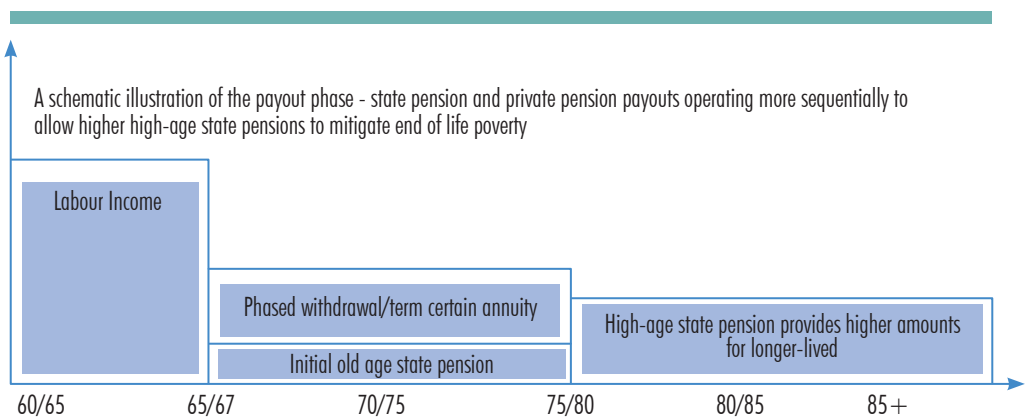
Longevity risk is one risk where market instruments that hedge the risk are not as likely to exist. Thus, government guarantees in this area (e.g. by providing lifetime income) may be valuable, but also potentially expensive. On the one hand, annuity income provided by a government is financially efficient since every retiree does not need to save enough to provide for themselves in case they live to a very old age. On the other hand, if the government is the guarantor ensuring that income is paid for each retiree's lifetime, they take on the risk that the average lifetime of the population will increase more than expected – called "systematic" longevity risk. Systematic risk is very hard to assess since unexpected medical innovations or other developments could significantly extend lifetimes.

Governments take on systematic longevity risk when they pay any form of public pensions –poverty alleviating 'zero pillars', contribution-linked first pillars, or even pensions for civil servants. When the government also underwrites longevity risk in an employer-based system it eliminates some of the positive effect of diversifying the pension system amongst both government and employer-based systems.

One approach to combining public and private delivery of pensions is to split the retirement period into two stages.[15] Public pensions start low for the first phase of retirement, with the gap being filled by private savings, continued work, family members and so on. Private savings only need to fill a certain period – say 10 or 15 years, which is a much simpler product to deliver than an annuity that needs to be priced to deliver a certain income for up to 40 years.

Figure 20.4

Two stage public pensions enable higher payouts to the very old



Source: Financial System Inquiry: Final Report November 2014, Commonwealth of Australia

[15] These two stages – the early retirement years and then very old age – have been termed by some authors the 3rd and 4th age or life stage (after youth and working years) – see for example work by Berstein and Larrain. It is useful to separate these two stages since the earlier stage is experienced by almost everyone who reaches age 55 or 60, while the later stage is not. Funding the later stage is more akin to an insurance problem that many people will not have to face. Some of the oldest pension programs in the world – for example the 1909 reforms in the U.K. – were designed to cover the oldest ages that only a minority of workers would be expected to reach.

In this approach the government takes on the burden of longevity risk by paying the entire old age pension after a certain age (e.g. 75, 80, or 85). By focusing public funds on the oldest ages, the societal goal of alleviating poverty is fulfilled at lower costs and the private sector is left to manage the transition from working career to retirement in the most effective way possible. Workers can be encouraged to work as long as they are productive without the full effect of legislated constraints on retirement timing. This has the potential to reduce the overall need for public funding of retirement. The idea is developed in greater detail in Price 2017.[16]

In this approach the private sector retirement payout solutions can be relatively straightforward. Typical payout solutions in this framework might be:

- Annuities with a maximum term defined by the age at which the public pension increases. For example, one might receive payments until death or until reaching 85 whichever comes first. Payments could be fixed, inflation-linked or variable (increasing or decreasing with investment returns).
- Systematic withdrawals could take the form of instalment payments equal to the remaining account balance divided by the years remaining until the age at which the public pension increases. This would allow for bequests for those who do not receive payments for the entire period.
- The ability to take some portion of an account out as a lump sum would be enhanced by the extra security of the public pension at older ages. Lump sum withdrawals would likely be limited so that at least a certain minimum amount would be paid out through one of the payout solutions described above.

Countries adopting this approach will need to do careful population projections to understand the full cost of the program and how it will change as a population develops and, in most countries, the number of people at the oldest old ages increases. Although the overall cost of the public portion of retirement costs will be reduced with a thoughtful implementation of this type of system, the uncertainty of the reduced cost will be increased since improvements in longevity are likely to change mortality at the oldest ages more than younger ages. Governments are exposed to this uncertainty in any event but it is a smaller share of a larger overall programme cost.

ALTERNATIVE FORMS OF ANNUITIES

Annuities may be offered in fixed amounts – flat in nominal terms over time, amounts which are indexed to inflation, increase at a certain percentage each year, or amounts which are variable depending on the investment returns provided by the assets.[17] Fixed amounts are a reasonable solution in countries where inflation is not high, but in countries with high inflation, inflation-indexed annuities would provide significantly more retirement security. However, if the supply of inflation-indexed bonds is not adequate, inflation-indexed

[16] Price, W. (2017 forthcoming) "Pensions Payouts: Practical Proposals for Policy", University of San Martin Del Porres, Peru 2017.

[17] This section does not go into great detail on all the different annuity options which can be found in a range of publications – for example Rocha and others (2011) cited above, or Brown, J. R., O. Mitchell, J. Poterba, and M. Warshawsky. 2001. "The Role of Annuity Markets in Financing Retirement". MIT Press, Cambridge.

annuities may not be viable the short-term. But this is an area where pension reform and capital market development can work hand in hand as the demand created by a retirement solutions market may be the right catalyst to encourage the Ministry of Finance or Debt Management Office of a country to develop the supply of inflation- linked bonds.

If inflation-linked annuities are not practical, payouts can still be set to rise at a given percentage each year – say 4% - that will help to offset inflation. This is a simpler liability to insure, backed with standard government (and corporate) bonds. Variable annuities with benefit payouts that increase or decrease as investment returns materialize above or below a target rate, will allow for higher initial payouts and are likely to generate higher future payouts throughout retirement as they enable investment in riskier asset classes which should generate higher returns – but this of course includes the risk that the payouts could fall which may not be a risk members are able to take. The correct course will depend in part on whether the payouts are an addition on top of a relatively generous public pension (e.g. Australia) or a major source of retirement income where public pensions are less generous as a share of average wages (e.g. the U.K.) or where the payment may be the only source of financial income or the public pension floor is very small (e.g. India).

In countries with a viable annuity market various considerations arise:

Minimum amounts – However efficient the payout and payments system is it won't be cost effective to annuitize all smaller balances and systematic or phased withdrawals (or even lump sum payments) may be the only options below some minimum level of savings.

Risk classification – Age, gender and income level are typically used by insurance companies to classify members' longevity risk and create pricing levels that are appropriate for each classification. The more detailed the classification mechanism, the more efficient, and potentially the more equitable, the provision of retirement can be. For example, higher levels of income can be provided to those who are certifiably less likely to live a long life due to health or lifestyle factors such as smoking which can counter-act the potentially regressive nature of annuities when a single conversion is used across the whole pensioner population. In some countries – including across the EU – gender-based annuity factors are not permitted on discrimination groups. This has the effect of creating the same payout to men and women with similar other demographic characteristics. Given that women typically live longer than men this means that for a given level of assets women will receive greater total income than men over time because they will receive the annuity for more years.

Capital requirements & insurance regulation – Retirement income products provide security over a decades-long time frame. The uncertainty related to reinvestment risk[18] and longevity requires special attention to all aspects of capital requirements, such as assumptions underlying reserve levels including mortality, investment return and reinvestment rates. While capital requirements that ensure the financial stability of insurance companies are desired, the more stringent the requirements, the costlier the

[18] Reinvestment risk refers to risk that future yields, after current fixed income investments mature, are uncertain. Because retirement periods may last 30 years or more, it is not possible to lock in yields for the entire period.

annuity products will be and/or the less profitable the insurance companies will be. So an appropriate balance must be sought and be constantly monitored. When longevity is uncertain and interest rates are very low as in many developed countries after the Global Financial Crisis, this can make annuities look 'expensive' even if they are priced competitively. This creates a challenging environment to offer annuities which appear to be a good value relative to the other options that members may see. This has increased attention on intermediate solutions such as variable annuities, or re-pricing annuities, where the payouts can be adjusted over time as investment returns or mortality experience becomes known. This is discussed in more detail below in relation to the example used in Sweden.

Price risk – Annuity prices depend on interest rates (bond yields) at the point in time of purchase. Because interest rates fluctuate and are uncertain, retiree income is subject to market risk. The same level of account will purchase less when bond yields are at 5% than when bond yields are at 7%. One approach to mitigating this risk is to allow annuity purchases to happen gradually – for example ½ on retirement, and the other half within 2 years. Another approach is to set up investment portfolios to hedge this risk. For example, a portion of lifecycle investment allocations can gradually be moved into bonds similar to the bonds invested in by annuity providers during the 10 years prior to retirement. Where the accumulation and decumulation phases are delivered by the same provider – for example in an employer sponsored Defined Benefit trust in some countries, or through a Provident Fund - the asset allocation can be exactly matched to the payout solution.

Commission levels – As with any financial product, aggressive sales incentives can lead to both overselling and inappropriately high costs. Regulation of commission levels and sales practice is desirable. However, some countries have concluded that the existence of commissions create such an inherent conflict of interest between the sales agent and the consumer that they have been banned (e.g. the U.K.). But, as argued above, there are strong arguments for creating a market structure where the cost of multiple sales agents chasing individual consumers do not arise because the selection of the payout options is made at scale and in bulk, even where there is some ability for individuals to tailor their options.

Product comparison – If insurers are free to design and market products without constraint the number of features and overall design can become too complex for members to make informed decisions about what products are best suited to their needs and cost comparisons become difficult. Electronic exchanges for products with standardized features are used in some countries – or a standard product is mandated by regulation. As highlighted above, in a standard Defined Benefit pension, the payout is not subject to multiple choices and hence there can be a bulk buy-out market operating at a group level. This market has traditionally involved insurance companies offering large scale buyouts of the liabilities of large employer sponsored plans. But as argued throughout this volume, it is possible to offer low-income individuals the same advantages by aggregating their assets and contracting directly on their behalf with the providers.

Societal issues – Most payout solutions should offer at least the potential to cover a spouse who survives a retiree. Not all retirees need to cover their surviving spouse in case where the spouse has his or her own retirement income, however in some countries it has been found desirable to require coverage of surviving spouses to eliminate situations where a spouse might leave their survivor with no provision for support.

Annuity structures which provide for a surviving spouse include:

Joint and survivor. Some percentage of the original annuity income continues to a spouse that survives after the retiree's death. Levels of pension continuance to a spouse typically range from 50% to 100%. For example, in the U.S. a minimum continuance of 50% is required for private pensions unless a spouse signs off. In Chile, male retirees must make provision for a surviving spouse, but women must only provide for a disabled spouse..

Refund annuity. Some lump sum amount is paid out to a surviving spouse or other beneficiary on death. This amount may be some portion of the original premium or it is sometimes defined as an amount that decreases as more of the annuity is paid out. For example, a lump sum equal to the original premium paid, minus the annuity payments made, may be returned to a retiree's beneficiaries on death of the retiree.

Period certain. Annuity payments are made for a period, e.g. 10 years, no matter how long the retiree lives.

Although providing annuity income may be desirable, practical barriers may exist as a lack of an insured annuity market or desire to avoid taking on longevity risk. While longevity risk for individuals can be nearly eliminated with pooling, the population life expectancy (systematic longevity risk) may still increase, leaving either the government or financial institutions exposed to significant unexpected costs.

An ideal system for many countries might provide annuity income as a base level of income with higher levels of savings being available as a phased withdrawal or even a lump sum to be managed and spent as the member sees fit. The base level of income provided through an annuity arrangement could be defined by a percentage of the value of a member's account or by a certain level of base income for all members linked to a poverty metric so that the pension system can achieve its core mission of sufficient adequacy to prevent poverty. Using the same level of annuity income for all members is based on the idea that a core objective is to ensure a base level of income for all so that there will be no further calls on the state budget from people who use up their other savings.

SYSTEMATIC OR PHASED WITHDRAWALS

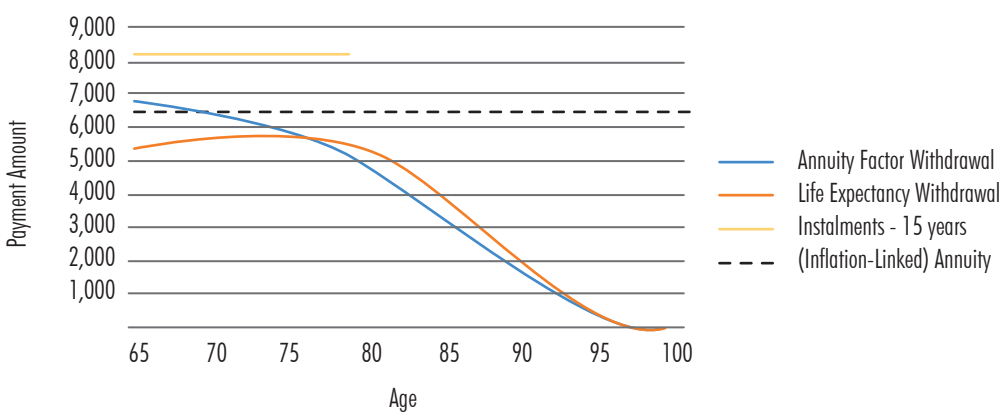
Many countries must operate a retirement system without the benefit of guaranteed lifetime annuities. There may be no market for insured annuities or insured annuities may not be cost-effective for modest levels of income because fixed administrative and sales costs are too high. Ideally, some base level of income will be provided with a lifetime guarantee through a social security type system. While such guarantees take advantage of longevity pooling as described above, governments, insurers or employers all must

be careful not to take on a level of longevity risk which may be unmanageable. This will usually leave a substantial portion of payouts to be managed in the context of longevity and investment risk.

Systematic withdrawals create income with the objective of making the retirement savings account last a lifetime but without a guarantee that it will. Typically, a systematic withdrawal will be managed by the retirement system with payments from the retirement system being delivered to members or their bank accounts and not eligible to be invested back into the retirement system. This alleviates the problem of members needing to make important decisions in an area where the vast majority of them have little or no confidence or expertise – a problem which increases significantly as retirees reach the later stages of their lives. Systematic withdrawal strategies offer some of the benefits of annuities but will also generally allow for a bequest, and for the ability to change the payout scheme at some point in the future.

Figure 20.5 illustrates the payout pattern for some typical forms of systematic withdrawal and compares those payouts to the payout from a standard annuity. The annuity is assumed to be paid by an insurance company but could also be paid by a government willing to take on the longevity (and any investment) risk. The Annuity Factor Withdrawal amount is recalculated each year by dividing the current account balance with the cost of an annuity for the remainder of the retiree's life. The Life Expectancy Withdrawal is calculated in the same way but divides the account balance by the remaining life expectancy instead. The instalment payments divide the current account balance by the time remaining in the instalment period. For example, after 10 years, the remaining account balance is divided by 5. In reality these payment patterns would not be smooth like the lines in the figure since asset returns would still be somewhat volatile.

Figure 20.5
Comparison of payout patterns for annuities and systematic withdrawals



Source: Authors' own estimates. Assumptions: 2% real rate of return used to calculate payouts; systematic withdrawals & instalments are assumed to earn 3% real returns during payout period; mortality based on U.S. RP-2014 male adjusted to make life expectancy = 18; annuity costs and profit are assumed to reduce annuity payment by 5%.

Systematic withdrawal strategies require that asset allocation is determined, monitored and maintained throughout the payout period. The vast majority of participants will not have the inclination or Systematic withdrawal strategies require that asset allocation is determined, monitored and maintained throughout the payout period. The vast majority of participants will not have the inclination or expertise to determine an appropriate asset allocation, but some value the opportunity to do so. Standard asset allocations, potentially with the flexibility to opt out of the default, are likely to be appropriate with systematic withdrawal schemes. Allowing members to determine asset allocation with no constraints may lead to inappropriate levels of risk.

Note that the annuity enables the highest payouts overall due to the efficiency of pooling longevity risk such that "savings" from retirees who die early are available to cover the extra cost for those who live longer. The systematic withdrawals necessarily decrease during the retirement period and will finish with retirement funds left over to pass on to other beneficiaries than the retiree. Although these approaches are less cost efficient when viewed from the perspective of enhancing retirement security, the decreasing payments and the potential to pass on savings to a spouse or children may be desirable for many individuals. The instalment payment approach pays more than an annuity if the instalment period is shorter than the life expectancy. Instalments will not provide lifetime income but do continue to pay benefits for the full instalment period, with payments after a retiree's death continuing to a designated beneficiary.

There are methods available that allow a retirement system to make systematic withdrawals payments in a pattern closer to that of the fixed annuity (the black dashed line in Figure 20.5). This approach requires the system to utilize funds left when retirees pass away and allocate them on an actuarial basis to the accounts of living retirees. This approach leaves nothing to beneficiaries (although provision can be made for spouses if desired) and thereby increases the level of retirement security delivered by the system. It naturally increases the administrative complexity of the system and is beyond the scope of this volume.

Table 20.3 shows the remaining account balance and divisor for each approach up until age 90. In the chart and table, the real rate of return is assumed to be 3% each year, whereas returns would actually vary such that the income amounts would increase and decrease more and be less predictable than shown in these examples.

Table 20.3
Comparison of Drawdown Rules

Amounts remaining with 3% rate of return						
	Annuity Factor		Life Expectancy		Instalment	
Age	Account	Divisor	Account	Divisor	Account	Divisor
65	100,000	14.66	100,000	18.0	100,000	15.0
70	79,511	12.04	85,044	14.3	71,455	10.0
75	57,579	9.52	66,086	10.9	38,363	5.0
80	36,071	7.18	44,640	8.0	-	-
85	17,803	5.14	23,935	5.6	-	-
90	5,787	3.51	8,559	3.7	-	-

Source: Authors' own estimates. Assumptions: 2% real rate of return used to calculate payouts; systematic withdrawals & instalments are assumed to earn 3% real returns during payout period; mortality based on U.S. RP-2014 male adjusted to make life expectancy = 18; annuity costs and profit are assumed to reduce annuity payment by 5%.

Another payout approach combines systematic withdrawals with a deferred annuity. This may be a practical approach in countries where no insured annuity market exists and the government wishes to provide full longevity protection but also leave the management of the retirement system primarily to the private sector. For example, the government might provide a fixed amount stipend to all members starting at age 85, while leaving the payout of savings balances to the private system. A levy on private system balances could be used to finance the late life payouts. It should be noted that this approach will leverage the risk related to improvements in life expectancy – i.e. when life expectancy increases the percentage increase in the cost of a deferred annuity will be more than the percentage increase in the cost of an immediate annuity.

CHOOSING THE ASSET ALLOCATION IN SYSTEMATIC AND PHASED WITHDRAWALS

As people enter retirement and begin to spend their assets, a new perspective on investment risk is required. Since it may be hard to reenter the workforce, there is no longer the potential to offset bad investment performance with additional labour income. Because assets may be gradually spent down, sequencing risk – where returns early in the retirement period have a bigger impact than later returns – becomes an issue and retirees will be more sensitive to investment risk. Generally, it will be appropriate to move from growth-oriented assets into more fixed income and to reduce the reliance on diversification amongst asset classes for reducing risk in favor of aligning asset income with spending needs, but the investment horizon for the assets may still be 30 years or

more. Lifecycle portfolios for the accumulation phase should be coordinated with this perspective on payout phase portfolios which suggests that the portfolio is actually going to include some element of return-seeking assets for a further 20 years.

Inflation is an issue to be considered for any retirement portfolio. Some developing countries already have inflation-linked bonds that directly address the risk of inflation eroding a retiree's purchasing power. In countries without inflation-linked bonds, higher allocations to equities may need to be maintained to protect against loss of purchasing power over time. This requires a functional domestic equity market or the legal ability to invest outside the country. In cases where this is not possible, pension funds with the scale, expertise and governance can invest in illiquid assets such as commercial or domestic real estate which have value that tends to grow with inflation.

As portfolios reduce the focus on growth and increase the focus on producing stable income, currency risk should be considered. Given that retirement spending is presumed to happen predominantly in the home country it may be appropriate to reduce currency risk progressively, a change that must be weighed against the continued value of diversification in non-domestic assets.

VARIABLE ANNUITIES, INVESTMENT AND SELF-ADJUSTING MECHANISMS

Longevity is increasing in almost every country and the cost of retirement increases when longevity increases. As time goes on the age parameters that define a retirement system – normal retirement age, early retirement ages, deferred annuity ages, will need to be increased for a retirement system to be sustainable. Whether the cost is borne by the government, by employers or by members, increasing longevity eventually pushes up costs to a point where changes are required. Because legislative changes to a retirement system can create political challenges, self-adjusting age mechanisms should be considered. Generally, self-adjusting mechanisms will have the objective to be cost neutral (the cost of the system is not changed, when an adjustment to an age parameter is made). However, they may also be designed to gradually increase or decrease costs over time or in tack with GDP or some similar measure that indicates how much retirement income is affordable at a sustainable level.

Benefits can also be adjusted as investment returns materialize. Similar to a variable annuity which adjusts an individual's benefit up and down with returns, the benefits for a system can be adjusted in a similar fashion. Sweden uses a variable annuity approach to providing retirement income which has several advantages. First of all, it takes advantage of the efficiency of longevity pooling (described above) but does not take on the systematic longevity risk related to the life expectancy of the population living longer than expected. Instead the mortality experience of the population is tracked and benefits are adjusted up or down to keep the system in financial balance. If more retirees than expected survive in a particular year, then benefits will be adjusted down for the entire population that is receiving payments. In this way, changes in life expectancy are gradually recognized in the system, increasing the sustainability of the system without

large adjustments to benefits which could be a hardship and without the need for political decisions which are too easily deferred until the system is in a crisis and significant changes are required. The Swedish approach is able to provide annuity income to retirees without the need for insured annuity products. This means that there is also no need for capital requirements to back the promises – another source of cost efficiency.

Another benefit of the Swedish approach is that the need for accurate mortality data is lower than for pricing a standard annuity where an insurer takes on longevity risk for 40 years or more. Hence it may be more applicable to developing countries where mortality data is less accessible. In Sweden the system is updated periodically as the statistical agency produces updated mortality tables. In a developing country the accuracy of the system could be progressively improved rather than taking a permanent risk with a set of subpar mortality tables. However, as highlighted above, for fairness reasons, it will be important to ensure that the pricing is not regressive and that there is a way in which the higher income, longer-lived population can be segmented from the poorer and likely shorter-lived.

One key idea in this volume is that the same types of differentiation to improve enrolment and participation can be used at retirement to improve retirement income outcomes. Everyone benefits from scalable administration and investments, but the precise terms of the payout arrangement can be varied for different groups.

RULES OF THUMB, EDUCATION **AND COMMUNICATION**

Where retirees have the option to take their savings as a single lump sum amount and must manage asset allocation and spending themselves, education initiatives are often pursued and in theory are valuable. However, evidence suggests that it is challenging to teach people to make good decisions despite many interesting and energetic initiatives. A key issue is that strong financial aptitude is correlated with natural ability at planning and choosing financial products, but evidence that training in financial aptitude increases the likelihood of actively deciding to participate in retirement savings programs or make optimal financial choices at retirement is weak. Whilst many countries believe that this is a particular problem in their country, this issue is significant in every country. Even in highly educated developed countries the benefits of financial education can be limited and transitory.[19]

On the other hand, communication is clearly important in supporting major policy reforms but may be most effective with very simple messages that link to a clear action. This is highlighted in Chapter 3 on the U.K. auto-enrolment experience where the campaign slogan was 'I'm In' – a message focused on getting people to remain in

[19] Finseraas, H., Jakobsson, N., Svensson, M. (2017) "Do knowledge gains from public information campaigns persist over time" Results from a survey experiment on the Norwegian pension reform", Journal of Pension Economics and Finance, Vol 16, Issue 1, January 2017, CUP, U.K..

the system. The intent is not for individuals to learn and retain any particular pension knowledge, but just to be convinced not to opt out.

One approach to changing behaviour is to proactively teach people good rules of thumb. It is well-established that people do use rules-of-thumb – known as 'heuristics' in the literature – when making decisions on pensions and savings.[20] This option is not suggested as best practice – that was set out earlier based on a market structure with a group/bulk purchase model and a mix of annuitization and drawdown tailored to the type of provision available from other sources including the state. However, the aim is to communicate rules of thumb that have some degree of rigour underlying them. Similar rules of thumb can be adapted to each country, adjusted for local conditions such as the real rate of return and longevity.

A few concepts that are useful for determining rules of thumb are:

Simple percentages for spending guidelines are useful. Typically, percentage guidelines should have some rough and simple relationship to expected real rates of return. A retiree who spends an amount exactly equal to the real rate of return[21] every year will end up with the same amount, adjusted for inflation, in his or her account every year during retirement. Spending guidelines can typically be 1% to 2% greater than the expected rate of return on a conservative portfolio, with 1% being more appropriate in countries with higher life expectancies and 2% potentially being appropriate in a country with lower life expectancy. For example, in a country with life expectancy at age 65 that is less than 80 and with expected returns on a conservative portfolio of 3%, it may be appropriate to communicate a rough guideline of 5% spending per year. That is fairly high, but appropriate for the relatively low life expectancy and reasonably high expected return.

Safe spending rises with age. The potential remaining future lifetime decreases as a retiree ages which means that safe spending levels increase with age. A guideline that is a function of age can be appropriate – for example age divided by 15 could be appropriate in a country with an expected real return on assets of 3% on a conservative portfolio. This would suggest spending of 4% at age 60 and 5% at age 75. Many retirees will want to spend more in the early years of retirement than in later years, but safe spending levels do increase with age.

Asset allocation guidelines can also be based on age. For example, the idea that the percentage allocation to bonds should be equal to age (60% in bonds at age 60) can be useful. In countries with inflation-indexed bonds, higher allocation of bonds are appropriate. In countries with small or non-existent inflation-indexed bond markets, a greater allocation to equities may be advisable in order to enable retirement income to keep pace with inflation and growth in the economy.

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[20] Bernartzi, S., and Thaler, R., "Heuristics and Biases in Retirement Savings Behavior" Journal of Economic Perspectives—Volume 21, Number 3—Summer 2007—Pages 81–104.

[21] The real rate of return is the rate of return minus inflation.

It is useful to distinguish between payout guidelines which fix a level of spending at retirement – e.g. spend 4% of initial retirement wealth and increase that with inflation in future years[22] - and those with a spending level that will adjust up or down as the savings balances increases or decreases. An example of an approach that adjusts spending is one that suggests spending a certain percentage – e.g. 4% - of the current account balance. Fixed approaches provide stable spending but more risk of running out of money, while an approach that adjusts based on the current account balance is more likely to last the entire lifetime. Fixed approaches are more subject to investment risk and an important type of risk that is relevant for pension payouts called sequencing risk. Sequencing risk occurs in any portfolio where there is continual net cash outflow from a portfolio and therefore is highly relevant for retirement payouts.

Table 20.4 shows the significant impact of sequencing risk on pension balances and different approaches to spending. The problem is that large drawdowns in the balance due to poor returns early in the retirement period are much more damaging to long-term security than poor returns later in the retirement period. In the table the fixed approach to spending is labelled "% of balance at retirement". The adjustable approach is labeled "% of current balance". Most retirees will not follow a strict formulaic approach to spending and their actual spending pattern is likely to combine elements of both of these approaches.

Table 20.4
The impact of sequencing risk on pension balances in drawdown

Remaining balance after 10 years				
Spending strategy ->	**% of balance at retirement**		**% of current balance**	
Year of -20% return	3%	5%	3%	5%
none	88,722	66,603	90,165	73,363
1	77,639	53,488	84,091	68,346
3	79,571	56,709	84,091	68,346
5	81,359	59,688	84,091	68,346
7	83,011	62,411	84,091	68,346
9	84,538	64,987	84,091	68,346
PV of spending	27,217	45,362	22,410 - 27,721	34,195 - 42,372

Source: Authors calculations
Assumptions: USD 100,000 savings balance at retirement; results with 2% real returns in top row compared to results which average 2% real geometric returns but with a -20% return included, which means the returns in the other 9 years = 4.03%, in order to average 2%.

[22] The so-called "4% rule" which became common in the U.S. in the 1990's and 2000's.

The table shows the portfolio balance after 10 years, given that a large downturn in the markets has impacted the portfolio in one year out of the 10. For example, a retiree who spends 5% of their initial savings, increased with inflation every year (column 2) and experiences a -20% return in year 1 of their retirement will find their portfolio depleted to only 53,488 from 100,000 after 10 years. The last row in the table shows that spending is higher (and more predictable) over the 10-year period for the strategies which fix levels of spending based on the initial portfolio value. However, the portfolio value is impacted significantly by downturns and in particular by sequencing risk. A retiree whose portfolio is hit with a large downturn right after retirement is impacted severely – at either level of spending shown, the portfolio after 10 years has only about half of the original value (after inflation). The approach which adjusts spending exactly as the portfolio increases or decreases will find that their portfolio value is impacted only modestly by volatility or large downturns and sequencing risk is not an issue.

While both of these basic approaches can be used by individual retirees to help them manage their retirement funds during the payout period, the table illustrates the challenges and the potential problematic outcomes that may result from retirees managing their own spending. If a retiree is asked to manage their own investments that creates additional risk and burden for a retiree. And these problems are likely to escalate to unmanageable levels as retirees age and lose cognitive ability.

CONCLUSION

This chapter has set out seven areas for consideration in the payout phase of a pension system – in both developed and developing countries. The right approach depends on the country, and should be examined against the long run outcomes that the pension system is seeking to achieve. In general, the objectives of the payout phase will be to pay meaningful income during member's lifetimes, expand coverage, and deliver it in a sustainable way. The system will want to ensure the security of assets and enable efficient market structures, investment, and administration of payments. In addition, an approach to retirement that encourages increasing participation in the labour market at both young and old ages will be needed to fund ever-longer lives.

Policies on early withdrawal of pension assets should be developed with an understanding of how they may impact the ultimate objective of the system – to pay retirement income. Unless withdrawals are repaid or somehow stimulate additional contributions (for which there is little evidence) then they will ultimately be detrimental.

Rising longevity requires increasing retirement ages and longer labour market attachment in order to the contributions, and, ultimately the income needed to fund a secure old age. Countries sometimes worry that this will negatively impact the employment chances of younger workers, but the available evidence suggests this is not the case. Linking future

retirement ages to (rising) longevity is likely to enhance sustainability as much as any other feature of the system.

This chapter emphasizes that scale, expertise and governance are just as important in the payout phase as in the accumulation phase. Too often even countries with well-designed accumulation phases default to an individual choice option for payouts – a choice for which members are not well-equipped and which adds additional cost. Likewise, innovations in data and ID, and in payments and account management – the same developments used to expand coverage in developing countries - can also make the payout phase far simpler and more efficient.

The chapter reviewed the pros and cons of different products, highlighting the strengths that traditional annuities have but also describing the requirements from the capital market and regulators. Options with variable payouts linked to actual investment returns and developing mortality experience can deliver many of the benefits of guaranteed lifetime income solutions without the costs associated with them. Likewise, systematic withdrawals offer many advantages compared to simple lump sum payouts. However, they do not guarantee lifetime income and sometimes require members to make complex choices and/or manage their own asset allocation which the literature shows is very challenging for ordinary members. One possible improvement in this area is to develop simple rules of thumb of the type many members use anyway, but based on sophisticated underlying modelling performed by the regulator.

There is tremendous opportunity to improve old age income for people in developing countries through the integration of financial technology and inclusion. These developments can be enhanced with best practice on scale, expertise and governance learned from pension markets globally. The opportunity to improve accumulation programs is large but applies just as much, if not more so, to the way retirement income is delivered from the hard won savings of ordinary people everywhere.