

GLOBAL PRODUCT DESIGN OF ANNUITIES AND ITS TAXATION

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1. Concept of Product, Product Design and Development

Products are goods and services which satisfy human wants. Basically, there are two types of products: tangible products and intangible products or services. Here we will discuss about financial products which provide some financial services to its consumers in order to meet their specific financial needs or to solve some specific financial problem. Each financial product is a contract or promise which intends to provide some benefits based on some events predictable in time (called as certain events) or based on some events unpredictable in time (called as contingent events). *Insurance and Annuity products are long term financial contracts which can provide benefits on contingent events which meet the needs of clients and stakeholders.*

Product design is the process of creating a new product to be sold by a business to its customers. A very broad concept, it is essentially the efficient and effective generation and development of ideas through a process that leads to new products. In a systematic approach, product designers conceptualize and evaluate ideas, turning them into tangible inventions and products. The product designer's role is to combine art, science, and technology to create new products that other people can use.

Actuaries generally use the actuarial control cycle (ACC) as a guide for developing and managing an annuity product. There are a number of representations of the control cycle. From the perspective of an insurance actuary, one of them is:



The point of the control cycle is to give a framework for managing a product line. In particular, it demonstrates the need to consider a wide range of issues holistically and to bear in mind that each area impacts on the others - for example pricing and underwriting are intimately linked for protection products.

Following are important factors/variables considered while designing a product or a contract.

- Benefit types [(Level or increasing), (Lump sum or series), (Guaranteed or discretionary), (Discontinuance or Surrender benefits)]
- Marketability (Attractive features relative to competitors' products)
- Profitability
- Competition
- Regulation
- Capital efficiency

Furthermore, financial products are designed by some benefit providers (e.g. life insurance Company) to meet certain financial needs of their clients or customers. The benefit providers will invest the money or premium received from its clients in different asset classes in order to meet its liabilities or benefit commitments to its clients in time in full. This investment strategy is known as liability driven investments (LDI) or asset liability matching (ALM). Therefore, while designing the products and making investments in various assets, following attributes of the underlying liabilities are considered:

- Nature of the liabilities (Life contingent or Non-life contingent/Term certain etc.)
- Existence of Options or Guarantees/Discretionary benefits
- Term or duration of liabilities (Short term or long term etc.)
- Currency denomination of liabilities (Domestic or Foreign)
- Sensitivity to interest rates and/or inflation rates of liabilities

2. Introduction to Retirement Planning and Pensions

Retirement Plans, also known as Pension Plans, constitute one of the key elements of every society's social and financial security system. Retirement Planning is of utmost importance for the elderly, but they have great effect on the functioning of the national economy and everyone's welfare. In the economic perspective, we can divide human life into three main phases: **youth, productive years and retirement**. Youth is the period when a person, through education and training, acquires "**human capital**", i.e., the ability to earn income throughout one's productive life. We define human capital as the present value of the anticipated earnings over one's work life. Acquisition of education, i.e., investment in human capital, is among the most important financial issues in a person's life. Another important issue is the accumulation of **financial capital** for retirement. During Productive Years (life) one gradually utilises the human capital, acquired mostly during one's youth, to earn and accumulate financial capital for retirement. Human capital (i.e. Knowledge and Skill) accumulated early in life becomes obsolete eventually, as the technology of production changes and more so with the blessing of longer life enjoyed by most of the world's population in the 20th and 21st century and consequent longer work life. This results in the need for reacquisition of human capital and reengineering of skills later in life. Nonetheless, with advancement of age, eventually one's physical and mental ability to work is depleted and somewhere before or at that moment, one needs to replace human capital with financial assets allowing for comparable standard of living. During retirement phase, the financial capital or assets accumulated during working or productive years is converted to regular stream of income to meet one's living expenses, health care expenses and other goals like travels, entertainment, bequeath etc.

The problem of financial security in the late stages of life has assumed increasing significance with the blessing of longer life (?) enjoyed by most of the world's population in the 20th and 21st century, i.e., with expanded human lifespan. In the pre-historic times or earlier centuries, retirement protection was never a socio-economic issue, as few people reached the retirement age (defined as the age when productive ability is no longer available). On the other hand, in the 20th and 21st century, providing for retirement became a very important socio-economic issue. Retirement planning and funding has become a major challenge globally. The World Bank publication and OASIS (Old Age Social and Income Security) Report of India goes as far as to call it the **Old Age Crisis**. The gravity of the problem results from the fact that many of the world economies appear to be unprepared for increasing longevity of their populations, the resulting ageing of their societies and increased retirement needs.

There are various possible means of support in the old age. Traditionally, the elderly had depended on support from their family members, mostly their children. With increasing mobility of children away from homes in search of employment and consequent declining trend of joint family system, the elderly people have to fend for themselves for their retirement finance.

Growing Urgency of Retirement Planning in Indian Society and Globally:

- Rising life expectancy or longevity risk and declining trend of traditional joint family system
- Absence of government-backed social security system in developing countries like India
- Rising inflationary trends
- Increasing cost of living and healthcare costs
- Deregulated, falling and volatile interest rates

- Increasing stock market volatility
- Growing shift by governments and employers world over from Defined Benefit (DB) Pension scheme because of its un-sustainability to Defined Contribution (DC) Pension scheme and consequent increased responsibility on the employees to manage their retirement finance.

3. Phases of Retirement Planning and Retirement Planning Risks

When a person retires, his regular income stops and he is dependent on his savings accumulated in his earning years to thrive for the rest of life. In the context of retirement planning, i.e., provision of retirement income out of savings, an individual's life is divided into 2 phases:

The 1st phase – the years before one retires – is known as the **accumulation phase or investment or savings phase or deferment phase or pre-retirement phase or working years or productive years or earning years** where individuals work, earn, consume and save and accumulate financial assets to maximise permanent lifetime income.

The 2nd phase – after one retires (from retirement onwards) – is known as **post-retirement phase or distribution phase or pay-out phase or withdrawal phase or decumulation phase or annuitisation phase** where individuals cease working and consume by running down or drawing down their savings or accumulated amount. Thus with individual (personal) pensions and defined contribution occupational (employer - sponsored) pensions, this involves converting the accumulated financial assets or the value of pension fund into regular income streams during retirement life: the **annuitisation decision**.

Retirement Planning Risks:

We can visualise the different types of risks faced by an individual, while planning his retirement finance, in the above two phases.

Accumulation phase: In deciding which assets to accumulate (invest), the considerations are the usual ones – return, risk and liquidity. In the accumulation stage, since one does not plan to call on (redeem) these assets for a long time, liquidity is secondary. One's main concerns are return and risk. In general, since long-term assets offer a higher rate of return, they are more attractive for long-term savings. So the relevant risks during accumulation phase are **investment risk and inflation risk**.

Distribution phase: Suppose that one's retirement saving has been successful and that one retires with a substantial nest egg. Since one expects to live from one's assets for some time to come, one must again worry about return, investment risk, liquidity and inflation risk. One must also worry about another type of risk - **longevity risk and finally the risk of outliving one's savings (or assets)** due to one or more of the basic risks.

Longevity Risk: The risk of living too long (dying too late) or living longer than expected - so that one's savings will expire before he does, i.e., the risk that the pensioner or retiree outlives his savings (resources or assets). **Extraordinary longevity is not a certainty for which one saves; rather it's a risk against which one insures.**

4. Pension and Retirement Security System

There are three legs or pillars or tiers in the retirement security system as under:

- Public Pensions/State Sponsored Social Security System
- Occupational Pension Schemes/Employer Sponsored Pension Schemes/Private pension plans
- Individual Retirement benefits/Personal Pensions/Self-funded retirement security plans
- A new 4th leg/tier in pension/retirement security system is Work after Retirement

Types of Pension Plans:

Based on the criterion of method of correction of an imbalance b/w assets and liabilities of a pension plan, i.e., by the way contributions are made and benefits are paid, Pension Plans are classified into 2 types:

- Defined Benefit (DB) Pension Plans
- Defined Contribution (DC) Pension Plans

Defined Benefit (DB) Pension Plans: Plans for which benefits are defined/prescribed in advance (i.e., a plan that promises participants a certain level of benefits, when they retire, based on some accrual rate determined by the member's final salary or final average salary or career average salary and number of years of service) and asset performance affects contribution levels needed to fund benefits. DB plans could be either funded or non-funded [i.e. pay-as-you-go (PAYG) basis]. Funding again is done either solely by the employer (non-contributory) or by the employer and the employees (plan participants) in which case it becomes contributory.

Defined Contribution (DC) Pension Plans: Plans for which only the contributions are defined/prescribed in advance (i.e., a pension plan in which the plan sponsor makes specified contributions to the accounts of the participants) and benefits are determined by the performance of the assets of the plan. DC scheme is always funded by definition. Funding again is done either solely by the employer (non-contributory) or by the employer and the employees (plan participants) in which case it becomes contributory.

5. Concept of and Need for Annuity Products

Purpose of a Retirement (Pension) Plan

The purpose of a pension plan is to provide retirement income security for the remaining life of the plan member. In short, to eliminate the risk that the pensioner outlives his/her savings or resources, i.e., his/her savings expire before he/she does.

A pension plan is not intended to provide the resources for people to go on a world tour when they retire or even necessarily to pay off their home loan (mortgage). Instead its purpose is to provide them with the means by which they can maintain a reasonable living standard or life style after they retire, and so avoid the need to fall back on the state or on other people in their sunset years.

Most pension plans being set up around the world today are **funded defined contribution (DC)** pension plans. The contributions are invested in the financial markets around the world and a fund or corpus is accumulated. When the plan member retires, he often has to use the proceeds from the pension fund to purchase a **life annuity**.

Definition of a life annuity

What is a life annuity? *It is a financial contract that provides regular income (monthly, quarterly, semi-annually or annually) to the annuitant for his/her remaining life in exchange for a premium.*

So clearly life annuities have a role to play in pension provision and retirement (life-cycle) finance of an individual. But what precisely is their role? Also what are the alternatives to life annuities and how effectively do these alternatives meet the definitions of a life annuity?

Annuity features: Annuities are guaranteed incomes. They may be for specific periods, for example 10 years. More frequently the income is guaranteed for the life of the holder. They are often used for pension purposes. Upon retirement a person would buy an annuity and thereby guarantee a retirement income payable until death. Once the annuity is taken out, it cannot be changed. The buyer of the annuity also needs to be aware that the money used to buy annuity is not usually refundable. If someone dies immediately after buying an annuity, the money used to buy the annuity is normally lost. However, it is possible to buy a guarantee, which ensures that the annuity is paid for a minimum period such as 5 or 10 years from the date of purchase. This ensures that the annuity is not wholly lost if death occurs within the period of guarantee, but there is a cost in the form of a reduced annuity rate.

How annuity works: Annuity can be looked upon as a form of insurance. Annuities that pay income for the rest of a person's life insure the individual against the possibility of outliving the money set aside for retirement. As with other forms of insurance, risk is pooled so that there are both gainers and losers. The pooling mechanism uses the funds of those who die early to subsidize the income of those who live longer than average. This is called "**mortality cross-subsidy**" (or **mortality credit or survivorship benefit**) whereby those who die young or early subsidize those who live long lives.

There is no obligation to buy an annuity from, the manager of the pension fund which manages the savings of the individual during his working life or accumulation phase. The '**open market option**' allows the policy holder to take the proceeds of pension funds on retirement away from the fund manager and to buy an annuity from another provider. This is an important facility since the difference between the best and worst annuity rates can be as much as 25% (e.g. 6% per annum against 7.5% per annum). However there could be a penalty charged by the pension fund manager if the money is transferred to

another annuity provider. In the case of occupational money-purchase (defined contribution) pension schemes, the trustees of the scheme usually buy the annuities.

Annuity Puzzle: People are often reluctant to buy an annuity upon retirement. One reason might be an underestimation of life expectancy. People will be reluctant to pay for an income for life if they expect that life to be relatively short. O'Brien et al (2005) found that, in the UK, on average men underestimated life expectancy by 4.6 years and women underestimated their life expectancy by 6 years. Apart from underestimating longevity people may also underestimate longevity risk, which is the risk that their own life span will differ significantly from the average (Drink Water and Sonder Geld 2004). Longevity risk makes the insurance dimension of annuities, **the annuity cross- subsidy**, important as a means of ensuring that retirees do not outlive their assets.

Concepts from behavioural finance may also help to explain the reluctance to buy annuity (Mitchell and Utkus 2006). **Hyperbolic discounting** is the tendency to heavily over weight present relative to the future. People prone to hyperbolic discounting dislike delay in enjoying their money such that even short postponement of the receipt of income entail heavy discounting of the future receipt. A **'live for today' attitude** is a manifestation of hyperbolic discounting. The possibility that death could occur soon after buying an annuity poses the possibility of loss. **Prospect theory** suggest that there is a high **loss aversion** and hence may indicate that retirees might avoid the possibilities of loss by not buying an annuity. However, since loss would be accompanied by death, the loss would not be painful (loss-aversion is based on losing money). If the concern is with passing on wealth to heirs the purchase of an annuity normally prevents that inheritance so that the timing of death is not a concern from the prospective of inheritance.

Annuities as Pensions: When used as pension, an annuity is a regular payment made by insurance company for the rest of the pensioner's life in return for a pension fund or retirement corpus. The pension corpus or fund would have been built up over the working life of the pensioner. The annuity payments will depend upon the size of the pension fund available for the purchase of the annuity. Annuity payments will also depend upon the rates of yield available from the government bonds at the time that the annuity is purchased.

Annuities normally invest in government bonds (gilts). The annuity payments to the pensioner arise partly from the yields on the government bonds, and partly from the repayment of the initial purchase price of the annuity. The purchase price of the annuity is returned to the pensioner over time at a rate that would return the entire sum by the actuarially expected date of death. Insurance company actuaries determine the expected date of death.

Determinants of annuity rates: When an annuity is taken out, an annuity rate is stipulated. For example an annuity rate of 7% per annum means that a payment of £100,000 as a single premium (annuity purchase price) secures an annual income of £7,000 per year. Annuity rates are basically functions of the [annuitant's mortality (i.e. life expectancy or the expected duration of annuity payment) and expected investment return over the pay-out phase]. So accordingly, the price of life annuities or annuity rates depend on several 'risk factors' pertaining to an annuitant. In particular:

- a) age at the time of annuity purchase;
- b) gender or sex;
- c) voluntary annuities versus pension annuities
- d) information available to the insurer about the annuitant's expected lifetime based on his health conditions and other lifestyle habits are important factors.

The importance of factor (a) is self-evident. The annuity rate will improve as the age at which the annuity is undertaken increases. Since an older person has a shorter life expectancy, the annuity provider would expect to pay the income over fewer years. The prospective shorter period allows for increased annual pay outs. Risk factor (b) is usually taken into account, because of the difference between the age-pattern of mortality in males and females. Since women have longer life expectancies than men, annuity rates tend to be lower for women than for men. However, in *uni-sex annuities* the same annuity rate (for a given age at entry) is adopted for males and females. These annuities involve a **solidarity effect** in the sense that **men cross-subsidise women**.

The term *voluntary annuities* (also known as purchase life annuities) usually denote annuities bought as a consequence of individual choice, which is exercised on a voluntary basis. Conversely, the term *pension annuities* (also known as compulsory purchase annuities) refers to benefits paid to people as a direct consequence of their membership of an occupational pension plan, or to annuities bought because a compulsory purchase mechanism works [e.g., mandatory minimum annuitisation of 40% of the corpus accumulated in the New Pension Scheme (NPS) in India on maturity]. Voluntary annuities are usually purchased by people with high life expectancy (**self-selection**), whereas individuals who know that they have a low expected lifetime are unlikely to purchase an annuity. The consequence is that actual voluntary annuitants have a mortality pattern different from the population as a whole. This fact is known as **adverse selection** (from the point of view of the life insurer). In terms of annuity rates, adverse selection leads to higher premiums for voluntary annuities, compared with pension annuities.

As regards point (d), insurers offer lower prices, that is, sell *special-rate annuities*, to people with an expected lifetime lower than the average one (or, equivalently, a higher annual benefit/annuity rate for a given single premium). In particular,

- **Impaired-life annuities** can be sold to people having health problems certified by a doctor (e.g., diabetes, chronic asthma, high blood pressure, cancer, etc.);
- **Enhanced annuities** can be purchased by people who self-certify the presence of some cause of a higher mortality level, like being over-weight, or being a regular smoker.

When calculating the annuity rate, the insurance company will estimate the number of years that person will live. For this purpose an average life expectancy is estimated and each individual is treated as if they will die at the expected age. The insurance company assumes that it will return the individual's capital over the number of years it expects the person to live. In addition there would be some interest on the capital, typically based on yield of government bonds (annuity or pension funds are typically invested in government bonds). The interest will decline over time because the capital is progressively returned to the individual.

Where a person has a lower than average life expectancy, it may be possible to obtain an 'enhanced rate annuity' or an 'impaired life annuity'. Enhanced rate annuities are available for people with moderately reduced life expectancies (e.g. reduced by an average of 5 years in the case of smokers). Such people would include smokers, the obese and diabetics. In such cases the annual annuity income may be enhanced by, perhaps, 10% or 20%. Impaired life annuities are available for people with very serious medical conditions. Impaired life annuities can provide very large enhancements, for example inoperable cancer may be associated with a six fold increase in annual annuity income.

Wealth also affects longevity (life expectancy); rich people live longer than poor people because rich people can afford better diet, nutrition, better housing, better health care and lifestyle which have positive impact on life expectancy. So, insurance companies give richer people lower annuity rates. Insurance companies tend to look at the size of the pension fund in order to ascertain relative wealth (Budden 2006). Large pension funds will attract lower annuity rates. An insurance company may have several trigger points at which annuity rates are reduced. As the size of the pension fund increases beyond a trigger point

the annuity rate is reduced. Longevity is also affected by the region in which the annuitant lives. Life expectancy is greater in some parts of the country when compared to others. Higher annuity rates could be paid in regions with relatively low life expectancies.

6. Different types of globally available Annuity Products

In the following paragraphs, we'll discuss different types of annuity products available globally, their features, benefits for the annuitants and their funding by insurance companies (the annuity providers).

Term-certain annuity (also known as Non-life-contingent annuity), which provides benefit payments irrespective of the continuing survival of the annuitant(s). An immediate annuity that pays ₹ 60,000 pa for 20 years is an example of this. The ₹ 60,000 annual payment will be made no matter what. It will be paid to the annuitant if surviving, otherwise to the beneficiary.

Life-contingent annuity (or simply, life annuity), where periodic payments are contingent on the survival of the annuitant(s). For example, a lifetime annuity of ₹ 75,000 pa for a single annuitant is an example of a life-contingent annuity. Life-contingent annuities can be sub-divided into *single life annuities* and *joint life annuities*. Joint life annuities can be established so that on the death of the primary annuitant (typically the one who saved up the money to buy the annuity) or on the death of either annuitant, the benefit amount is reduced because one person can live less expensively than two.

We will confine our discussion to life annuities only. Only insurance companies are allowed to offer life-contingent annuities world over. The banking and securities industries are not permitted to underwrite mortality risk.

Immediate annuity, which provide periodic benefit payments to the annuitant(s) commencing on the purchase of the annuity (i.e. first payment starts during the first period after purchase).

Deferred annuity, where periodic benefit payments to the annuitant(s) may commence at some future date, made conditional on the annuitant being alive on the payment start date and subsequent payment dates. In this case it is possible that no annuity payments will ever be made. This annuity can be purchased by the annuitant(s) either by a single lump-sum premium or by making regular periodic savings spread over the deferment period.

Temporary annuity, where periodic benefit payments are made while the annuitant(s) is/are alive, but with a maximum number of payments: payment ceases either on the death of the annuitant(s) or when the maximum term is reached, whichever happens first.

Guaranteed annuity (also known as life annuity with a guaranteed period), where periodic benefit payments are made for at least the guarantee period, even if the annuitant dies before the end of the guarantee period; in which case the guaranteed annuity payments are made to the annuitant's beneficiary. If the annuitant survives beyond the guarantee period, then the annuity payment will continue to him till his death.

Value-protected annuity, which provides an alternative mechanism for receiving a return of capital in the event of the early death of the annuitant. If the cumulated sum of the annuity payments at death is less than the initial premium, then the difference is returned to the estate of the deceased.

Level annuity (sometimes called standard or conventional or fixed life annuity), which provides a constant nominal money income for the remaining life of the annuitant; annuity providers invest the premium in fixed-income bonds and the coupon payments on these are used to make the annuity payments. Thus, the real value of the income (value in terms of purchasing power) will fall over time as prices rise.

A number of models of ‘varying’ annuities have been derived, mainly with the purpose of protecting the annuitant against the loss of purchasing power because of inflation.

Escalating annuity (or constant-growth annuity), where the annual benefit increases at a fixed annual rate, k , so that the sequence of payments is:

$$b_1, b_2 = b_1(1+k), b_3 = b_1(1+k)^2, \dots$$

Usually, the premium is calculated accounting for the annual increase in the benefit. Thus, for a given amount S (the single premium of the immediate life annuity), the starting benefit b_1 will be lower than the benefit the annuitant will get from a level annuity.

Index-linked annuity (or inflation-linked annuity), a particular type of escalating annuity which provides a growing income in line with rises in some inflation index like consumer price index (CPI) in India or retail-price index (RPI) in UK; usually with a stated upper limit. The annuity providers should invest the premiums in inflation-linked assets like index-linked government bonds or inflation-indexed government bonds so that these back the annuities where the payments are linked to a price index and the coupon payments from these assets are used to make the annuity payments.

Limited price indexed (LPI) annuity, a particular type of indexed-annuity which compensates for inflation but only up to a stated limit (such as 5% pa); the initial payment will be higher than with an indexed-annuity and therefore provides a compromise between full indexation and the income from a level annuity.

Equity-indexed annuity, which earns annual interest that is linked to a stock or other equity index (e.g., the Standard & Poor’s 500). Here the fund backing the annuity is to be invested in an equity product and the annuitant will receive a random annuity payment which is related to the performance of the equity market. Usually, the annuity promises a minimum rate.

Investment-linked annuity, the main examples of which are with-profit and unit-linked (or variable) annuity; the premium is invested in an equity fund and part of the profits are allocated as a bonus to the annuitants each year. If the investment performance is poor, then the income from the annuity can fall, although if the investment performance is strong, the income from the annuity will rise.

Given that many pensioners can expect to live for 20 or more years, one can reasonably expect that over such a long horizon the return on equities will exceed the return on bonds; therefore the investment-linked annuities are likely, over this horizon, to generate higher income than, say, a level (fixed) annuity whose income is linked to the yield on bonds. Investment-linked annuities are also a hedge against inflation. We now focus on the different models of investment-linked annuities:

With-profits annuity, (typically in the UK market), where the pension fund or the single premium is invested in a with-profits fund of an insurance company. Annual benefits depend on an assumed annual bonus rate (e.g., 5%) and on the sequence of actual declared bonus rates, which in turn depend on the performance of the fund. In each year, the annual rate of increase in the annuity depends on the spread between the actual declared bonus and the assumed bonus. Clearly, the higher is the assumed bonus rate; **the** lower is the rate of increase in the annuity. The benefit decreases when the actual declared bonus rate is lower than the assumed bonus rate. Although the annual benefit can fluctuate, with-profits annuities usually provide a guaranteed minimum benefit.

Various **profit participation mechanisms** (other than the bonus mechanism described above in respect of with-profits annuity) are adopted, for example, in many European continental countries. A share (e.g., 80%) of the difference between the yield from the investments backing the mathematical reserves and the

technical rate of interest (i.e., the minimum guaranteed interest, say, 2% or 3%) is credited to the reserves. This leads to increase in the benefits, thanks to the extra yield.

Unit-linked life annuity, where the single premium or the pension fund is invested into unit-linked funds. Generally, the annuitant can choose the type of fund, for example medium risk managed fund or conversely higher risk managed funds. Each year, a fixed number of units are sold to provide the benefit payment. Hence, the benefit is directly linked to the value of the underlying fund of investments and then it fluctuates in line with the unit prices. Some unit-linked funds guarantee a minimum performance in line with a given index.

New UK budget 2014 pension reforms/Implications on annuity product design/Pricing of annuity/other possible design of pension provisions/alternative to annuities: At UK Budget 2014, the government announced the most fundamental change to how people can access their pension savings in nearly a century. The budget provision has removed the effective requirement to buy an annuity compulsorily; people will have greater flexibility in accessing their pensions.

This means that people can choose how they access their defined contribution pension savings; for example they could take all their pension savings as a **lump sum, draw them down over time (income draw down), or buy an annuity.**

Alongside this, the government is introducing a new requirement for pension providers to make sure that everyone retiring with a defined contribution pension pot receives free and impartial face-to-face guidance on the choices they face when deciding how to use their retirement savings. The government of UK has published a consultation paper on how best to implement these changes, which will be introduced from April 2015. (For more information, visit: <https://www.gov.uk/government/consultations/freedom-and-choice-in-pensions>)

How the current system works: One of the most important stages in life which everybody has to save for is retirement, and one of the biggest financial decisions taken in life is what to do with those savings when retiring. Under the old system in place before the Budget, only those with a very large pension pot typically worth over £310,000 or those with total pension wealth below £18,000 could access their pension savings flexibly. But around three-quarters of those retiring each year purchase an annuity.

Pension pot options: Currently, a pensioner can take up to 25% of his pension pot tax-free. With the rest, he has 4 options. If he withdraws all his money then he is charged 55% in tax.

Option 1: If a pensioner is aged 60 and over and have overall pension savings of less than £18k he can take them **all in one lump sum** – this is a **trivial commutation**.

Option 2: A **‘capped drawdown’** pension allows one to take income from one’s pension, but there is a maximum amount one can withdraw each year (120% of an equivalent annuity).

Option 3: With **‘flexible drawdown’** there’s no limit on the amount one can draw from one’s pot each year, but one must have a guaranteed income of more than £20k per year in retirement.

Option 4: But three quarters of people buy an annuity – an insurance product where a fixed sum of money is paid to someone each year, typically for the rest of their life.

Regardless of one’s total pension wealth, if one is aged 60 or over, one can take any pot worth less than £2k as a lump sum, as this classifies as a ‘small pot’.

Proposed Budget 2014 reforms: In the meantime, as a first step towards this reform, the Chancellor has announced a number of changes to the current rules that will come into effect from 27 March 2014. This will allow people to have greater freedom and choice now over accessing their defined contribution pension savings at retirement. These are:

- Reducing the amount of guaranteed income people need in retirement to access their savings flexibly, from £20,000 to £12,000.
- Increasing the amount of total pension savings that can be taken as a lump sum, from £18,000 to £30,000. One will be able to take the whole lot in cash. This is known as “trivial commutation” and will be taxed at one’s marginal tax rate.
- increasing the capped drawdown withdrawal limit from 120% to 150% of an equivalent annuity
- Increasing the maximum size of a small pension pot which can be taken as a lump sum (regardless of total pension wealth) from £2,000 to £10,000 and increasing the number of personal pots that can be taken under these rules from two to three.

Who will benefit: The changes coming into effect on 27 March 2014 will mean around **400,000** more people will have the option to access their savings more flexibly in the financial year 2014-15. From April 2015, the **320,000** people who retire each year with defined contribution pensions will have complete choice over how they access their pension.

Implications/Consequences of Budget 2014 Pension Reforms:

On Pensioners/Retirees [more responsibility for managing retirement finance]: A change in pension rules heralded in the chancellor's Budget speech means a retiree can now draw their entire pension in one go, if they wish. For some, the freedom will mean retirement planning that can better suit their needs. But what does it mean for the centuries-old annuity, and the security of an income for life which it provides?

A retirement annuity is an income that is bought once with a pension pot and lasts for the rest of the holder's life. A pension company will work out how long the pensioner is likely to live and will offer an income. If the buyer lives longer than expected, the provider makes less money than anticipated, or a loss. If the buyer dies sooner, the pension firm often keeps the difference. Annuities have been criticised by pensions experts such as campaigner Ros Altmann, who has said firms don't disclose how they calculate payments and often add opaque fees.

(Reference to: http://www.rosaltmann.com/annuities_pricing_bonanza_no_controls_13aug2013.htm)

Choice [Difficult for some/better for the smart/adverse or sub-optimal for not so smart]: The changes will affect those over 55 who have savings in a defined contribution (DC) pension scheme, such as a personal pension. In a DC scheme, the pension depends on the amount of money you, and perhaps your employer, have saved in the scheme and the investment return realised.

Of those who choose not to buy annuities, many may enjoy better outcomes, but some will burn through their money too quickly, [because they can have ready access to all of it] and others will be too cautious.” The main change is choice, as the choice of an annuity is not being prohibited. Following the financial crisis and the low rates that followed that, the choice should help pensioners.

Criticism didn't only centre on the change to returns brought about by the financial crash. In February 2014 the Financial Conduct Authority, the City watchdog, concluded the pensions market was not working following a review into the "disorderly" annuities market, which shut out savers with smaller pensions and provided bad deals for loyal customers. Annuity income could increase by 6.8% a year if people shopped around for an annuity, the FCA said.

'Open market': Many pension savers were, and are, unaware they could get an annuity from a firm other than the one that managed their investments, and shop around as they would with a savings account or mortgage. The overwhelming majority of people who buy an annuity from their existing provider could get a better deal on the open market, so [the Budget] announcement should help stop millions of people from losing out on thousands of pounds of retirement income.

Legal Duty for Pension Providers to give proper advice to retirees on using their pension corpus: The key to making this work will be a requirement on providers to give consumers high quality, impartial advice on their options across the whole of the market, with maximum protection at this critical time in their financial lives. Giving people the choice of opting out of an annuity is likely to have some consequences, though. The first is it places people's long-term financial planning in their own hands, rather than having a professional take charge.

Tax boost for Treasury: One winner may be Chancellor George Osborne's Treasury. As soon as pension payments are made, they become taxable. To the extent that people access more of their pension pot earlier in retirement, this will also mean paying tax sooner - that's why the government assumes the policy will raise £1.2bn in 2018-19. The flip side is that it will collect less tax from pensioners later in their retirement.

Adverse Selection for the annuity providers/insurance companies and higher annuity prices for the annuitants: The move will mean annuities will suffer from what economists and insurers call adverse selection. Those who are ill and feel they won't get the best from an annuity, a long-term investment by its nature, will most likely cash their investments in order to spend them or pass them on. Because it is expected that healthier people who will live longer will choose the annuity, the pool of money will have to be stretched further among them, meaning less income per month for those that choose that.

The annuity price will go up (i.e. annuity rates will come down), or, inversely, annuitants will get less annuity.

Enabling innovation in annuity product design: Allowing individuals to access their pension how they wish presents an opportunity for providers to develop new retirement income products that more closely meet the evolving needs of consumers. The government is keen to ensure that the new tax system enables this kind of market innovation, allows greater choice for individuals and stimulates greater competition among providers. The consultation document sought views on how best the government could design the new system in order to deliver these aims.

The current tax legislation caters for two broad categories of retirement income:

- a. **Lifetime annuities:** the tax rules governing lifetime annuities are prescriptive and relatively inflexible. As an example, payments made under a lifetime annuity are not permitted to decrease, except in specified circumstances
- b. **Income drawdown (both capped and flexible):** the tax rules governing drawdown are significantly more flexible, and will become even more so from April 2015.

The government is clear that annuities will remain the right choice for many at some point during their retirement, and believes that many people will still value the security of an annuity. However, there is a clear demand for more flexibility to allow new products that fit with the changing nature of retirement.

The government has consulted extensively on this issue, and believes that in order to allow innovation, many of the restrictions in the tax rules and pensions legislation need to be removed. During the consultation period, pension providers told the government that relaxing the rules governing annuities would allow them to develop a number of new, more flexible, annuities. The changes set out below will enable providers to create new types of annuities that more closely meet consumer needs, as well as creating products through the drawdown rules.

The government intends to change the current tax rules in order to:

- **Allow lifetime annuities to decrease**, which will provide significantly more flexibility around the design of the product. This will allow providers to offer products which meet individuals' needs more closely, for example by allowing annuity payments to reduce once an individual becomes eligible for the State Pension
- **Allow lump sums to be taken from lifetime annuities**, on the condition that this is specified in the contract at the point of purchase. This will allow providers to structure much more flexible products that are capable of meeting specific circumstances, such as care needs
- **Remove the ten-year guarantee period for guaranteed annuities**, which will allow payments made to beneficiaries from guaranteed annuities to continue beyond the current ten year maximum. This will allow providers to create annuities that ensure more of an individual's fund is returned to their families in the event of their death
- **Allow payments from guaranteed annuities to be paid to beneficiaries as a lump sum, where they are under £30,000**. This will allow beneficiaries to receive pension payments as a lump sum if they wish, rather than having to spread these out over several years

In the old system only individuals with very large or very small pension pots were able to access their pension flexibly. From April 2015 the government expects that the retirement income industry will develop a number of new drawdown products, which take into account the greater volumes of people seeking to buy them alongside the broader variety in fund sizes used to purchase them.

In order to protect consumers in a new system that permits innovation, the government will work closely with the Financial Conduct Authority (FCA), the Prudential Regulatory Authority and the Pensions Regulator to ensure that the regulatory regime is sufficiently robust to protect the interests of consumers.

7. Risks with Annuities

A. Risks to the Issuing Insurers

Adverse selection and mortality risk: If there is the voluntary option to purchase annuities, then those who believe from their own family medical histories that they are likely to live longer than average will be amongst those most likely to purchase annuities (**self-selection**). This leads to what is known as **adverse selection risk**. To hedge this risk, the insurance company will base its annuity rates, not on the mortality experience of the population as a whole, but on that 'select group' that it believes is most likely to purchase annuities. Why is this?

It is because it is difficult for insurance companies to differentiate between prospective purchasers who will experience heavier than average mortality, die early on and so make a **mortality profit** for the insurance company. And those who will experience lighter than average mortality and hence make a **mortality loss** for the insurance company. The mortality profit from those who die early is shared between the insurance company and those who live much longer than average.

So annuities will be very poor value for members of the first group, those who will die very shortly after taking out the annuity. But if the insurance company underestimates the number of its annuitants who are in the second group of longer living people then it will make a loss. Similarly if the insurance company overestimates the number of its annuitants who are in the first group of shorter living people then also it will make a loss.

There is also another type of risk that insurance companies face. This is **mortality risk, the risk of systematically underestimating improvements in mortality over time**.

To illustrate, a man born in UK in 1900 could expect to live until he was about 50. When universal state pension were introduced in UK in 1948, men could expect to live until they were 68. With a male retirement age of 65, the expected length of time that a man would enjoy the pension would there for 3years. Today, British men can expect to live into their late 70's or early 80's.

UK insurance companies have underestimated the average life expectancies of their current pool of annuitants by up to 2 years. They are therefore paying out pensions for about 2 years longer than they had forecast.

In an attempt to protect against these risks, insurance companies add cost loadings of about 12%. This 12% figure is obtained by comparing the price of a zero-cost annuity in which the average number of population as a whole participates and the price of same annuity if only the members of select group that voluntarily purchase annuity participates. The difference in price is around 12%.

Inflation risk: The next risk that we have to deal with is inflation risk. Unanticipated high inflation rapidly reduces the real value of pension that is fixed in nominal terms. As assumption about the rate of inflation is embedded in the yield on all level annuities, but if inflation is higher than this anticipated rate, then the real income provided by the annuity will be lower than expected.

Many countries have experienced at various times a very high inflation for example the inflation during the 1970's in UK averaged 25% per year, so that people who bought level annuities at the beginning of 1970's experienced a very substantial fall in real value of pension by the end of 1970's. It was this experience of inflation that persuaded the UK government to introduce index-linked bonds in the early 1980's. It was the first western government to do so. The bonds enabled the insurance companies to offer index linked annuities for the first time.

Interest rate risk: Annuity rates vary substantially over the interest rate cycle. Annuity rates are related to the yields of government bonds of same expected terms, about 17 years. But over the interest yield cycle, these yields can vary by as much as 150%. This means that if a person retires at interest rate though the pension will be permanently low.

B. Risks to the Annuitants

Interest rate risk: To the extent that the annuity payments depend on the yields on government bonds, potential pensioners face a high degree of uncertainty. Yields on government bonds can vary considerably over time. In consequence annuity rates can change substantially from year to year. If a person retires in a year in which annuity rates are relatively low, that person suffers a low pension for the rest of his/her life. The system of obtaining a pension by buying an annuity at retirement involves a considerable amount of risk. The size of the pension depends upon when this occurs. Retirement at a time when government bond yields are low results in a low pension for life.

Real return risk or inflation risk: Booth and Wood (2000) made the point that a historically low annuity rates does not necessarily mean that the annuitant is disadvantaged. It depends upon why the bond yields, which determine the annuity rates, are low. Interest rates and bond yields can be divided into real rates and compensation for expected inflation. If bond yields are low because expected inflation is low, and if expectation of low inflation subsequently proves to be accurate, the apparently low annuity rates are low only in money terms. The difference between historically high and historically low annuity rates would be one of the distributions of future real payments over time rather than average levels.

Booth and Wood (2000) provided a numerical example, which contrasted a situation of 3% per annum real yield and 6% per annum expected inflation (producing 9.2% per annum nominal yield) with a situation of 3% per annum real yield and 2.5% per annum expected inflation (a 5.6% per annum nominal yield). In the first circumstance the sum of £98,205 bought a level annuity of £10,000 per annum where as in the second case the annuity was £7,832 per annum. However inflation of 6% per annum erodes the real (purchasing power) value of the £10,000 annuity faster than inflation of 2.5% per annum reduces the real value of the £7,832 annuity. Whereas initially the real value of the £10,000 annuity was higher of the two, Booth and Wood showed that within 8 years the real value of the £7,832 annuity was the greater one. Thereafter the difference in favour of the £7,832 became progressively greater.

Arguably the risk is not so much whether there will be a low or high annuity rate on the retirement date as whether the expected rate of the inflation reflected by the annuity rate will be realized. As subsequent inflation rate would be lower than the rate reflected in the annuity rate would be good for the annuitant where as if inflation turns out to be higher the annuitant would lose.

8. How are the problems with annuities currently managed?

Insurance companies use the government bond market to protect against both interest rate and inflation risk arising after the annuity is purchased. In other words, when an annuitant purchases a level annuity, the insurance company uses the premium to buy a government bond with the same term with the annuitant's life expectancy (say, 17 years) and pays the pension using the coupon payments received on the bond. If, on the other hand the annuitant buys an index-linked annuity, the insurance company will buy an index linked bond and pay the pension from the coupons received. The coupons and annuity payments will rise over time if there is inflation. But the insurance company bears no interest rate risk or inflation risk after the annuity is purchased.

Annuitants themselves can be exposed to interest and inflation risk, however.

If the pension plan member retires during an interest rate trough as happened in the UK in the mid-1990s, then he can end up with a low pension for rest of his life.

Similarly if a 65 year old man chooses an index-linked annuity, he will receive an initial pension that is about 30% lower than for a level annuity. Now with inflation at 3% p.a. it takes 11 years for the indexed annuity to exceed the level annuity in cash terms, and it takes a further 19 years before the total cash payments are equalized.

Most people choose the level annuity and so retain the inflation risk.

Outcome

Insurance companies use the financial markets to hedge the interest rate and inflation risks that they face from the purchase date.

Interest rate risk up until date of retirement is borne by future annuitants: they might be unlucky enough at a point when interest rates and therefore annuity rates are very low. Inflation risk is borne after the retirement date by those who choose a level annuity.

Mortality risk and the risk of underestimating improvements in mortality seem to be shared between insurance companies and (new) annuitants. Insurance companies in the UK claims to lose money on their annuity business. This follows because they have underestimated the life expectancy of their annuitant pool by up to two years. These losses will be reflected in higher charges for new annuitants.

Can mandatory annuities help to ameliorate these problems?

The main weakness in private sector annuity provision relate to adverse selection and mortality risk.

Mandatory annuities and mandatory membership of supplementary pension plans would help to remove adverse selection bias in the demand for annuities. This follows because if everyone has to buy an annuity, then the annuity rates offered will equal those of the population as a whole and not of the select group that voluntarily purchases annuities.

Can survivor bonds help?

Can the government help insurance companies hedge the aggregate mortality risk they face? Yes, if they introduce a new type of bonds called Survivor Bonds. These are government bonds in which coupons are linked to the realized mortality experience of the population of retirement age on the date that the bond is

issued. The coupons decline at the same rate as members of this group die, but the coupons continue indefinitely until every member of the group has died. If an insurance company buys these bonds, then it will be perfectly hedge from aggregate improvements in mortality. In other words, survivor bonds remove the risk from underestimating mortality improvements. This is because coupons stay high if the rate at which people die slows down.

Since insurance companies would now bear no aggregate mortality risk, cost loadings on annuities would fall.

Insurance companies could still face specific mortality risks, however. For example, if they sell annuities to non-smokers, they would be bearing the specific mortality risks of that select group of annuitants who would be expected to live longer than average. But that would be a commercial decision of the insurance company.

In the following paragraphs, we'll focus on two more important types of annuities, namely, Variable annuity and Impaired-life annuity, which are growing in popularity in USA and European markets in greater detail.

9. Alternatives to annuities

Lump sum: The pension fund that has accumulated over the working life is given to the retiree/pensioner on retirement and he can spend or reinvest it as he wishes.

State provision: The state provides social security pensions on a pay-as-you-go (PAYG) basis from current revenues/tax receipts.

Income drawdown (managed annuity, unsecured pension or managed pension): This enables people to defer buying an annuity, during periods of low interest rate/annuity rate, while drawing an income from their pension fund. This was introduced in the UK in 1995 because falling annuity rates since 1990 had led to a substantial reduction in the income paid on annuities. So the UK government came under immense pressure to introduce drawdown.

With drawdown, the pensioner leaves the pension fund invested in earning assets, equity assets in particular, but draws a part of the fund each year as an income which varies between 35% and 100% of a corresponding single-life level annuity.

Under UK regulatory framework, there is another condition that must be met. This income drawdown facility is available from the retirement age until age 75; what remains of the fund must be used to purchase an annuity by age 75 at the latest. One disadvantage of this facility is that the fund may be exhausted before death because of the absence of mortality-cross-subsidy (aka mortality credit or survivorship benefit) which is the main benefit of annuity for longer living pensioners.

Nevertheless, one of the advantages of drawdown is that if the pensioner dies before age 75, the balance of the fund goes to his estate/nominee as a lump sum. This contrasts with an annuity; when an annuitant dies, any remaining value to the annuity is lost completely, unless a minimum guarantee was also purchased when the annuity was first taken out.

Are annuities necessary?

Should pensioners be obliged to purchase annuities or should they have some other choice? The answer depends in part on benefits and risks associated with each alternative.

10. Problems with alternatives to annuities

Lump sum

With a lump sum, the pensioner now bears his/her own mortality risk. Part of the justification for giving somebody a lump sum is that they can take personal responsibility for themselves. But this does not get around the problem that none of us has a good idea of when we are going to die.

This tends to a **moral hazard problem**, since it is perfectly possible for someone to spend their lump sum too quickly and then go back to their state for help. This is known as '**double dipping**', the state has no real alternative to provide them with help. Since they are now genuinely poor and will otherwise be destitute.

State provision

The second alternative is state provision, but virtually every country in world is facing a **demographic time bomb**. There are not enough young workers in work to pay for the growing elderly population. This is true in Japan. It is also true in European countries such as Germany and Italy where in 30 years' time there will be more people in retirement than in work. There will just not be sufficient people in work to pay for the pensions of all their old people.

Income drawdown

One problem with income drawdown is that annuity rate might be even lower when the annuity is eventually purchased.

A second problem is that investment performance during the deferral period might be poor and that the fund, rather than growing in value actually falls in value. Consequently annuitants risk having a smaller sum with which to buy an annuity.

Another problem is that individuals forego what is called the 'mortality cross subsidy'. As we pointed out above when someone dies shortly after taking out an annuity they create a mortality profit that is shared out amongst the annuitants who live a long time.

This **mortality cross-subsidy** is cumulative over time, which means that by delaying the purchase of an annuity, the individuals are subject to what is called a '**mortality drag**'. The mortality drag is the additional rate of return that the investments left in the fund have to generate above the yield on an annuity in order for income drawdown to provide a higher overall pension in retirement. The mortality drag in a given year is equal to the proportion of the original group of annuitants who die that year. Since this rises monotonically over time, it eventually becomes virtually impossible for the return on the fund to beat that from an annuity.

11. Variable annuities and GMxB features

The Retirement Conundrum

With more employers around the world phasing out defined benefit pension plans, retirees will continue to have significantly greater responsibility for maintaining their retirement nest egg in later years, whether through any one or more of the defined contribution pension plans like 401(k) plans, IRAs in USA, New Pension Plans (NPS) in India or personal savings. Historically, retirees took a conservative approach to investing during retirement (i.e. during the pay-out or distribution or retirement income phase). However, because retirees now live longer (20-30 years typically spent in retirement), nest egg (retirement corpus) distributions need to last longer. With retirees' increased life expectancy and their inability to rely on guaranteed cash flow from defined benefit plans, financial planners often recommend greater allocations to equity investments for potential higher returns. With greater equity allocations, though, comes the risk that a significant investment loss in the early years of retirement distributions will permanently scramble the nest egg. Once a nest egg enters the distribution phase, early investment losses are difficult to make up.

Product Solutions

With fixed annuities, the periodical annuities are fixed and guaranteed. The annuitants would pay periodical premiums during the accumulation phase of the deferred pension or annuity plan for the right to the fixed and guaranteed periodical annuities for life. Traditional actuarial techniques have focused on the assessment and management of life contingent risks/mortality and morbidity. The investment side of insurance and fixed annuity plans generally has not been regarded as source of major risk. This was (and still is) a reasonable assumption, where guaranteed benefits can be broadly matched or immunized with fixed interest instruments. But insurance and annuity markets around the world are changing. The public has become more aware of investment opportunities outside the insurance sectors, particularly in mutual fund type investment media. Policy holders and annuitants want to enjoy the benefits of equity investment in conjunction mortality/longevity protection, and insurers/annuity providers around the world have developed equity linked contracts to meet this challenge. Although some contracts types pass most of the asset risk to the policy holder/annuitant and involve little or no investment risk for the insurer, it was natural for insurers/annuity providers to incorporate payment guarantees in these new contracts – this is consistent with the traditional insurance philosophy.

Thus the insurance and annuity industry created product solutions to address this problem during the last decade in the form of guaranteed living benefits riders attached to variable annuities. Variable annuities (VAs) are life insurance products with investment guarantees. In other words packaging a range of guarantees is a feature of variable annuities. These products are unit linked investment policies, providing deferred annuity benefits. The annuity can be structured as a level annuity or a unit linked annuity. Basically, VAs combines the advantages of traditional life insurance products (long term savings with a high degree of security and guaranteed benefits) with the advantages of unit linked products (transparency of the investment and full upside potential). Thus from a policyholder's stand point, with VAs, it is possible finally to purchase an investment product that

- has rich and transparent benefits ,
- is segregated from the other assets of an insurance company and hence is protected in the event of an insurance company going bankrupt,
- is linked to actively managed funds, as a consequence making it easier to invest in mutual funds,
- has personal tax benefits, and
- Sheltered from the policyholder's creditors.

While this may sound very attractive from a consumer stand point, the drawback is that it is by no means easy to produce prudently risked managed VAs, since producing VAs generates high risks for the insurance company. These risks, unfortunately, can only be managed with a highly disciplined approach, since they are typically exposed to equity market risk, interest rate risk, currency risk, mortality / longevity risk and policyholder behaviour risk.

The Need for Variable Annuities

The modern life-insurance industry has been successfully offering a tremendous variety of life-insurance products for several hundred years. Some of these life-insurance products (e.g., with-profits endowments and annuity products) are aimed at providing investment possibilities. These products typically provide substantial investment guarantees, which are one of their main advantages, along with tax privileges and prudently managed assets.

There are some clear disadvantages, which may be relevant to some, but not all, customers, and forces of competition led to the development of new products which addressed these disadvantages. Example of these disadvantages are the opaqueness of the investment process, a lack of customer control over the investment process, insufficient profit sharing of returns above the investment guarantee and the opaqueness of this profit-sharing mechanism.

Over time it became apparent that there is an additional disadvantage from a company perspective, which is the substantial required risk capital these products generate due to the guarantees they provide.

VA products first appeared in the US in 1950s where it has been running successfully. In Europe and Asia, the problems associated with the traditional insurance and investment products were addressed by the so-called unit-linked products, which did not provide investment guarantees. Unit-linked products invested the savings part of the policyholder's premiums transparently in investment vehicles (which could be either internally or externally managed funds) and let the policyholder participate fully in the investment returns of these funds. While these products clearly address the issues of the traditional insurance and investment products as mentioned above, they typically do not provide the any investment guarantees.

The obvious solution was to build investment guarantees into the unit-linked products, which is basically what variable annuities did. The development was further fuelled by the fact that the multi-national insurers who were already offering VAs in the US were now interested in repeating their success in the Asian and European markets.

Variable annuity definition

While the use of the term "variable annuity" is understood in the US (where these products were invented) this term sometimes tends to cause confusion in other parts of the world. VAs are sometimes also known as unit-linked product with investment guarantees, segregated funds, equity linked guarantees, etc., outside the US. Therefore, VAs are not really variable and are not necessarily annuities... they are actually unit linked savings contracts with attaching guarantees. VAs allow the allocation of premiums into a range of investment options, which usually contains stocks, bonds, money market instruments or some combination of the three that in many cases include mutual funds.

The benefits to the policyholder will then depend on the performance of this investment option. Typically, the benefit for a defined event (e.g., death, maturity) is the higher of the market value of the policyholder's investment and the guaranteed amount. This implies that the policyholder is protected against the insured event (e.g., death) and poor investment performance.

Of course the insurance companies will charge a premium (fee) for issuing these guarantees, as well as for administering the contract and paying its sales channel.

Variable annuity product features

To summarise, VA writers follow a **liability driven investment (LDI)** approach (strategy) designed to manage the risks so that any product guarantees can be paid when they fall due. They use similar tools and techniques as liability driven investment strategies for the asset liability management like duration matching and convexity hedging. While variable annuities take many forms, each can be described as the combination of two primary elements: (1) an investment account, and (2) guarantees.

i. The investment account (separate account)

The core investment account is a basket of investment funds, or subaccounts. The options typically include stock funds, bond funds and money market accounts. Policyholders allocate premiums into the subaccounts and often have the ability to change the allocation and to contribute additional premiums. The benefits provided by the guarantees are a function of the performance of the investment account.

Policyholders have typically had significant discretion of the movement of funds from one subaccount to another. Recent product innovations have added constraints to this ability by limiting the percentage of funds in the riskiest investments or by automatically rebalancing allocations in times of market stress. These limitations are designed to reduce the market risk to the insurer in adverse market scenarios.

The insurer typically holds the investment account funds in a separate account protected from claims against the insurer in the event of insolvency and for which the policyholder bears all the investment risk.

The policyholder maintains access to the funds in the investment account at all times. However, full surrenders prior to the pay-out phase (or annuitisation) result in forfeiture of the guarantees, and partial surrenders above contractually permitted levels result in proportional reductions to guarantees. In addition, early surrender penalties may be levied.

ii. Guarantees

Variable annuity guarantees are calculated in reference to the “benefits base,” which is a notional amount used to determine the amount of payments to the policyholder from guarantees. The benefits base may differ from the value of the investment account as a result of various guarantees on the benefits base. Variable annuities generally provide guaranteed appreciation of the benefits base even if the account value has not grown.

The benefits/guarantees, collectively referred to as GMxBs (namely guaranteed minimum benefits of type x), include minimum benefits both in case of death and in case of life. The GMxBs are usually defined in terms of the amount resulting from the accumulation process (the account value) at some point of time, compared with a given benchmark (which may be expressed in terms of the interest rate, a fixed benefit amount, etc.).

One or more than one GMxB can be included in the policy as a rider to the basic variable annuity product. A brief description of some GMxBs follows:

a) **GMDB = Guaranteed minimum death benefit.** The GMDB guarantees a minimum lump sum benefit payable upon the annuitant’s death. The GMDB can be defined in several ways; for example:

- **Return of premiums** consists in the payment of the greater of the amount of premiums paid and the account value;

- **Highest anniversary value** pays the greater of the highest account value at past anniversaries and the current account value within (hence, according to a **ratchet** mechanism);
- **Roll-up** consists in the payment of the higher of an amount equal to the premiums paid accumulated at a given rate of interest (say, 5%) and the account value.

The GMDB typically expires at the end the accumulation period or when a given time (say, 10 years) has elapsed since the commencement of the decumulation period.

b) **GMAB = Guaranteed minimum accumulation benefit.** The GMAB can be exercised at prefixed dates (during the accumulation period); the policyholder receives, as the surrender value, a lump sum equal to the higher of the guaranteed amount and the account value. For example the guaranteed amount can be determined as the premiums paid accumulated at a given interest rate (say, 5%) according to roll-up rule, and can be paid for example at the 10th anniversary (measured from the beginning of the accumulation period).

c) **GMIB = Guaranteed minimum income benefit.** The term income ‘income’ refers to annual amounts payable to the annuitant. The policyholder receives the higher of the guaranteed amount and the account value, payable as an annuity whose annual benefit is determined according to a given interest rate and life table. The guaranteed amount is typically calculated according to a roll-up accumulation or an annual ratchet. Hence, the GMIB guarantees a minimum annual income upon annuitisation.

d) **GMWB = Guaranteed minimum withdrawal benefit.** The policyholder receives the greater of return of premiums and the account value, payable as a sequence of periodic withdrawals throughout time. For example, the GMWB might guarantee that the policyholder will receive for 20 years an annual amount equal to 5% of the premiums paid. Some policies do not allow the policy holder to withdraw money after the commencement of annuity payments.

GMAB, GMIB and GMWB are commonly referred to as GLB, namely **guaranteed living benefits**.

All GMxBs have option like characteristics. However, the possible utilisation of the GMDB follows the age pattern of mortality and hence can be assessed using a life table (together with assumptions about the performance of the financial market). Conversely, the utilisation of GLB depends of the policyholder’s behaviour and hence the assessment of its impact is much more difficult.

The most common forms of guarantees associated with the growth of the benefit base are:

- **Roll-ups:** This is the simplest form of return guarantee. A roll-up provides guaranteed appreciation of the benefits base at a specific interest rate. The guarantee may accrue on a simple or compound interest basis. A 0 per cent roll-up is the same as a return-of-principal guarantee.
- **Ratchets:** Also called a “high watermark.” With a ratchet, the benefits base is set equal to the highest of all values of the underlying funds throughout the accumulation phase, evaluated at a pre-defined time interval (e.g. annually). At various frequencies the existing benefits base is compared to the account value, and if the account value is higher, the benefits base is “ratcheted” up to the new level.
- **Resets:** Resets are triggered at the discretion of the policyholder. They involve a comparison of the current account value to the original account value, and the benefits base is reset to the higher level. Other policy provisions such as a waiting period may be reset as well.
- Some variable annuities offer guaranteed appreciation of the benefits base that combines one or more of the above forms of guarantees. For example, a common combination guarantee is the maximum of a roll-up and a ratchet.

Variable annuity guarantees are typically backed by an insurer's general account. As a consequence, the additional risks introduced by the variable annuity guarantees and their associated reserves and asset liability management strategies are commingled with other risks assumed by the insurer. This allows for some risk offsets and diversification effects.

Risks of Variable annuities to the Issuing Insurer

As discussed earlier, variable annuities provide the policyholder with an investment with a set of guarantees, the most common and relevant, especially in the U.S., being the guaranteed lifetime income to retirees. As with the offering of any traditional insurance solution, regardless of the coverage being applied, certain risks are incurred by the issuing insurer. It is imperative that the insurer not only understands and has the ability to measure these risks, but also to effectively manage these risks while holding the appropriate levels of regulatory or economic capital to support the satisfaction of these obligations to the policyholder.

Key risks

There are generally three buckets of risk that exist with almost all life insurance products, variable annuities included. These are:

- insurance risk
- market risk
- behavioural or utilisation risk.

For variable annuities specifically:

Longevity risk is the primary *insurance risk* due to the nature of the income guarantees that are offered; some mortality risk exists due to the nature of the death benefit guarantees that are offered.

Equity risk and interest rate risk are the primary *market risks* due to 1) the underlying equity and fixed-income investments that drive the policyholder's account value performance and 2) the long-term nature of the income guarantees. In addition, some credit risk also is present in the fixed-income investments.

Persistency risk and benefit utilisation risk are the primary *behavioural or utilisation risks* due to the nature of the product structure which generally has the insurer receiving revenue over time and insurance claims being paid well into the future.

Primary "Lines of Defence"

Insurers use a number of lines of defence to manage the above buckets of risks. These are:

- product design and prudence in assumptions
- risk pooling ("law of large numbers")
- natural hedges and a diverse balance sheet
- asset liability management and reinsurance
- stress scenario analysis for single and combined shocks and the appropriate provision and management of economic risk capital.

These lines of defence are employed to varying degrees in an insurer's risk management strategy, depending on the nature of the risk and the availability and effectiveness of each method. Not all of the lines of defence listed are used with all risks or types of insurance. For instance, reinsurance is generally not used as a primary risk management strategy for variable annuities due to the current limited availability of reinsurance for variable annuity guaranteed benefits.

12. Impaired-life annuities and their features

a. What is an Impaired-life Annuity?

An impaired or enhanced annuity is simply a purchased life or compulsory purchase annuity under which the client is offered a higher annuity income than that available to a “standard” annuity purchaser. The higher income is offered to those clients assessed by the insurance company as being likely to experience *higher* than average mortality, and hence more likely to suffer from premature death. Because the insurer expects to make annuity payments for a shorter period of time, it can afford to make these payments appropriately higher.

Thus enhanced annuities for impaired lives offer an increased annuity or pension if the annuitant has serious health problems certified by a doctor, such as cancer, chronic asthma, diabetes, heart attack, high blood pressure, kidney failure or stroke which significantly reduces life expectancy. These impaired-life annuities offer substantially increased benefits.

Whereas ordinary enhanced annuity products offer limited uplift over the standard annuity rates if the annuitant is overweight or smokes regularly and these are self-certified and are non-underwritten.

Mortality is a key assumption in determining annuity rates. By identifying and allowing for the poorer health of clients, insurers who sell enhanced annuities can offer “unhealthy” clients significantly better terms. This gives these offices a competitive advantage.

b. Impaired-life annuity features:

- Mortality assessed using factors other than age and gender
- Lifestyle factors – smoking, geographical area residence, obesity
- Medical impairments
- Lead time from quote to commencement of annuity
- Verification of individual risk factors – medical evidence
- obtained large number of cases
- Balance additional acquisition costs against the benefit of the enhancement from extra mortality
- Take up rate
- For a significant enhancement the extra mortality needs to be significant, permanent and verifiable
- It offers an alternative route to improving retirement incomes for many people
- As products they are a viable, low risk, alternative to income drawdown and with-profits annuities

Even though the margins in the ‘standard’ annuity market are small, existing players have no strong incentives to offer impaired annuity products. By offering enhanced terms to these clients, established players would not only reduce their profitability, but also to open them up to new competition. A developing impaired market could destabilize their market position.

The market for impaired annuity is quite small as it is a niche market but holds a lot of potential for new players. The impaired annuity market is not yet quite so competitive and so margins are wider.

c. Product Design and Underwriting/Rating Systems

Underwriting/Rating Systems

A rating system is the set of rules that determine whether a client is “impaired”, and consequently how much of an enhancement they can be offered. This section considers desirable features for a system, and reviews a range of possible approaches.

Some general observations can be made about rating systems:

Size of potential market: The logical balance between the level of impairment, the size of the enhancement to the annuity and the size of potential market are well known – the lesser the impairment, the more people are likely to qualify, but the lower the enhancement available.

Accessibility: Another key aspect is the accessibility of the product. If it is difficult for advisors to assess whether their clients might benefit, or if medical evidence requirements are onerous, then the advisors are unlikely to be interested in the product - they may not wish to put in substantial extra effort for an enhancement that does not materialise.

Anti-selection: Anti-selection has to be considered too. If an insurer does not intend to complicate the sales process by getting medical evidence, they are exposed to anti-selection arising from applicants exaggerating their impairments. This might force the insurer to reduce the enhancements they feel comfortable offering. It is also important to avoid offering improved terms where there are medical or surgical interventions that can significantly improve the client’s life expectancy.

Permanence: A system should not rely on factors which can be controlled by the client (e.g. offering enhancements for medical conditions where effective treatments can be undertaken).

Competition: A simple, easy access, rating system will generally allow enhancements to a greater number of clients, but at lower levels. Competitive difficulties would arise if the enhancements were too low - business could be lost to insurers with tighter rating systems offering higher enhancements to the same customer.

Rule Based Systems or an Individually Underwritten Approach

A successful “impaired” annuity seller would need to make an up-front research investment to design a set of criteria for identifying those applicants who qualify for enhanced terms. This investment might be as little as one or two person months. The alternative approach of having each applicant individually assessed by an underwriter (who determines the enhancement), though viable, has a number of drawbacks.

A rating system can either be strictly rules based or can be subject to individual assessment by an underwriter.

A rules based system is a set of pre-agreed criteria that determine the enhancement. Clerical staff can apply the rules, and the intervention of an underwriter is not required. A simple system might only use a small number of questions (for example “do you smoke?”) which require yes or no answers, combined with simple enhancements (for example “if smoker, enhance by 5%”).

A more complex system might combine a large range of health and social questions. Under more complex systems, the answers are “combined” by using a pre-determined set of rules with the result being the enhancement. This would be done using an automated system. In general, the more complex the rules the greater the enhancement that can be offered - however, there is an increased chance that some of the cases might be too complex, and require the attention of an underwriter.

Where cases are individually underwritten, then the enhancement is left to the judgement of the underwriter in question. The underwriter looks at the medical evidence, and comes to a decision.

Rules based systems clearly require more effort to set up initially. They have a number of advantages:

- They give consistent results - the element of subjectivity that arises from individual underwriting is removed.
- They can be used by clerical staff - this makes them both cheaper and, crucially, quicker to operate.
- They are far more robust should business volumes be higher than expected - an office that relies solely on their senior underwriters would quickly come to grief if volumes are high.
- The existence of formal rules allows better experience monitoring of these rules.

Rules based systems can process the vast majority of even difficult cases - they are not limited to “easy” ones.

The main disadvantage of rules based systems is that they can be complex to create. Nevertheless, if an insurer plans to make a long term commitment to the market, a rules based system must be the best approach. Given the potential rewards of the impaired market, the research investment to create a set of rules, which might be as little as a few weeks, should not be an obstacle.

Risks of impaired annuity products

Impaired annuities are not a low risk product. In addition to the types of risks faced in “standard” annuity business, there are risks associated with **poor quality research, incorrect risk segmentation and inadequate experience monitoring**. In these circumstances, the market may operate in a systematic manner to ensure that the insurer only writes business which has been incorrectly priced. The long tailed nature of annuity business exacerbates this risk.

The main risks to the company in launching an impaired life annuity product are as follows:

Mortality risk: Mortality risk, and in particular longevity risk, is the main risk to the company when offering this contract. The risk is that more impaired life annuitants will live longer than is assumed in the pricing basis.....meaning that the company will have to make annuity payments for a longer period of time than it expects to a larger number of annuitants.

Investment risk: If the company overestimates the mortality for the impaired life annuitants, and the annuitants live longer than expected, then there is a risk that the company will invest in assets that produce an income for too short duration to match the liability outgo.

Moral hazard/Product risk: The Company must consider whether other insurance providers in the market offer a similar product or whether this is the first impaired annuity to be offered in the market in question. If the company reduces its rates for non-impaired lives then annuitants may select against the company to get better rates elsewhere.

If the company is the first to offer an impaired life annuity, then there is a significant risk of **moral hazard** occurring if the annuity-purchasing public understand the impaired life annuity product being offered. Potential purchasers may lie about their smoking status, for example, on application forms to meet the eligibility criteria. If this occurs, and the insurance company does not vet the applications properly, then it may be that ordinary lives are accepted on impaired life annuity terms, which would

result in a loss to the insurance company, since the impaired life annuitant population is then likely to live for longer than expected in the pricing basis.

Experience risk on ordinary life portfolio: The Company's current ordinary life immediate annuitants are likely to contain a mixture of impaired and unimpaired lives. This means that the average mortality experienced by this portfolio of lives will be worse than a portfolio where all the impaired lives are removed. If the company offers the impaired life annuity, there is a danger that in future the mortality experience of the ordinary life annuitants is lighter than allowed for in the pricing basis and lighter than has been the case in the past.

Medical care improvement risk: An impaired annuitant suffering from some critical illnesses like cancer or cardio-vascular diseases may live longer, if say, a wonderful drug or treatment for cancer is invented. This will reduce the mortality from cancer. Insurers do not know if and when it may happen. Of late mortality from cardio-vascular diseases has been reducing. If these mortality improvements from these critical medical conditions/diseases owing to medical care improvements are not taken into account accurately in the pricing basis of impaired annuities, annuity providers may incur loss. To control these risk annuity providers should have robust research and development (R&D) on medical treatment improvements w.r.t. critical diseases.

Marketing/reputation risk: If the company is the first to offer an impaired life annuity in the market, then there is a marketing risk in that the company may suffer from poor publicity either as a result of the perception that the insurer is trying to make profits out of annuitants in poor health, or due to the risk that the processing of the new product does not go as smoothly as expected (e.g. due to the underwriting process taking too long).

Thus to summarise, the greatest risk in impaired –life annuities lies in underwriting, i.e., correctly assessing the level of impairment and correctly quantifying the extra payment to be afforded for a particular medical condition. A second risk is of substantial increases in life expectancy brought about by improvements in treatments for key conditions underwritten in the impaired annuity market.

The main actions that the insurer can take to minimise these risks are as follows:

Longevity risk: The insurer must ensure that it introduces an adequate underwriting procedure to determine whether a life is eligible for the impaired life annuity.

This will involve adding appropriate questions to the proposal form regarding the proposer's health and lifestyle. e.g. height/weight/BMI questions, smoker status as well as quantity of cigars/cigarettes smoked, alcohol consumption and so on.

Care will be taken over the smoker status, since someone who smokes only occasionally may classify themselves as a smoker, when their mortality risk is very similar to a non-smoker. Hence the amount of smoking in the last x years may be assessed to determine whether a proposer is classed as a smoker or not.

The questions asked on the proposal form may be quite similar to those used to assess term assurance applications, since the underwriter is likely to be looking for the same indicators of poor health. The underwriting procedure is also likely to involve some second stage testing to ascertain whether the proposer can be accepted on impaired life terms.

For example, the proposer may be required to undergo medical tests to assess heart function and general levels of fitness. The underwriter would be looking for those test results to show that the proposer was in poor health. In addition, the insurer can also be relatively conservative in the way it sets the mortality

assumption for the impaired life annuities and ensure that it does not overestimate the mortality assumption for impaired life annuitants.

Whilst a heavier mortality assumption than for the ordinary lives will be chosen, it may be set such that it is not significantly heavier than the ordinary lives assumption or so that it allows for greater improvements in mortality in the future. The insurer may seek the advice of its reinsurers to assist in setting the impaired life annuity mortality assumption, since the reinsurers may have experience of writing such business either in this market or in other markets overseas. The insurer may reinsure a proportion of the impaired annuity business, which will also assist in minimising the longevity risk that the insurer is exposed to. The insurer may also use any publicly available annuitant mortality tables that differentiate between, say, smokers and non-smokers to assist in setting the mortality assumption. The moral hazard risk is best controlled by a strict underwriting process as outlined above.

The risk of improvements in the mortality of the ordinary lives portfolio is best dealt with by careful monitoring of the mortality experience on that book of business and ensuring that adequate provision has been made for future improvements in mortality in the pricing basis.

The marketing/reputation risk will be minimised by ensuring that the company adequately thinks through the underwriting and administration processes in advance of launching the contract, and makes whatever system changes are necessary to the policy administration system so that the business can be processed adequately.

Staff, and in particular underwriters, must be trained in advance of the launch of the product so that the underwriting process is smooth. The marketing material accompanying the product launch and the information given to the sales channels must provide adequate detail related to the underwriting procedure so that they can clearly articulate to proposers why it is necessary.

The company may consider adding further features to the contract, e.g. ensuring the annuity payment is made for a minimum of 2 years, to minimise the poor publicity that might arise were lots of impaired life annuitants to die soon after the inception of their policies.

13. Taxation Issues of Annuity Products from Annuitants' Perspectives

The taxation of annuity plans varies from country to country. In the following paragraphs we'll discuss the tax status of annuity products for some specific countries:

Taxation of Annuity Plans in India

Periodical contributions by the employee (annuitant) to annuity/pension plans [e.g. New Pension Scheme (NPS)] during accumulations phase enjoy tax exemption (E) up to a specified limit per annum, under section 80C of IT Act, 1961 (current limit is ₹150,000/- which is an overall limit including other permissible investments like PF, PPF, Life Insurance Premium, NSC, ELSS, Tax Saving Bank FD etc.); periodical growth in value (i.e. return earned by the contributions or income accrual) also get tax exemption (E), but periodical annuity payment on annuitisation of the pension fund on maturity gets taxed (T) according to the marginal tax rate of the annuitant. This is called EET (exempt-exempt-taxed) tax incidence for the annuity plan. Also any lump sum withdrawal from NPS on or before age 60, subject to permissible limit of the accumulated corpus, known as Commutation of pension, is fully taxable. For example, NPS allows 60% of the corpus to be withdrawn as lump sum on maturity at age 60 (retirement) which is taxable compared to 1/3rd tax-free withdrawal from an ordinary pension plan on retirement.

Detailed Explanation of Tax Treatment of NPS

Taxation for annuitant's contribution to NPS Tier I account

The Section 80 CCD allows deduction for contributions made by the employee or the employer towards NPS account. There are some restrictions on the contribution made towards the NPS Tier I account under this Section. Like if the person is employed, he/she can claim deduction up to 10% of the salary which comprises basic + DA. In case the person is self-employed, the restriction up to which tax benefit can be claimed under Section 80CCD is capped @ 10% of the Gross Total Income.

Gross Total Income includes sum of all incomes computed as per provisions of the Income Tax laws, before any deduction is allowed to an individual in respect of various items broadly covered under Section 80C, 80CCC and 80D etc. However deductions in respect of interest paid for the housing loan is deducted before arriving at the figure of gross total income for calculating the limit of 10%.

It is important to note that there is an absolute limit of ₹150000 (as per new budget 2014-'15 provisions) up to which a taxpayer can claim the deduction under Section 80CCD (1) (for the contribution towards NPS account). This limit of ₹150000 covers not only the contribution to NPS but also covers items eligible for deduction under Section 80C, like life insurance premium, EPF, PPF, NSC, school Fee, investments in Equity Linked Saving Schemes, repayment of housing loan etc. Even payments made by an individual to life insurance companies for purchase of pension U/S 80 CCC are also covered within the limit of ₹150000.

Tax treatment for contribution made by annuitant's employer:

The contributions made by the employer towards the NPS account qualifies for deduction under Section 80CCD (2) without attracting the limit of ₹150000 laid down in Section 80 CCE. However, there is only one restriction that only up to 10% of the salary (basic + DA) only qualifies for deduction without any monetary limit.

The employer is also eligible for a corporate tax deduction on this contribution.

It works wonders for those who are in highest tax bracket, as there is no absolute limit up to which one's employer can contribute towards one's NPS account for claiming the deduction as long as this is within the limit of 10% of your salary. Thus many HR Consultants and Tax Consultants advise the prospective employees to get their salary restructured so as to include 10% component of their salary as contribution to NPS. This will provide a separate window for tax saving and investment.

The point to note here is that the amount of 10% contributed by an employer will be treated as salary under Section 17 and will form part of Form No. 16 issued to an employee. However, the employer will grant deduction for his contribution under Section 80CCD (2) before deducting any income tax from the employee. So, for all practical purposes employer's contribution to the NPS account up to 10% of salary becomes tax free in employee's hand and gets invested in NPS.

Tax treatment when an annuitant reaches the retirement age:

The contributions made by an employee and the employer get accumulated in the Tier I account and the value of such corpus depends on factors like quantum of money deposited, the asset classes opted by the employee for investment and the returns generated by the pension fund manager. Once the employee complete the 60 years of age, he/she has to compulsorily purchase an annuity for an amount equal to minimum of 40% of the accumulated balance in the NPS account.

The annuity needs to be bought from a life insurance company which is registered with IRDA (Insurance Regulation and Development Authority). In case an individual wish to withdraw the money before completion of 60 years of age, he/she can do so; but in that case he/she will have to purchase an annuity utilising minimum of 80% of the accumulated corpus at the time of withdrawal.

The money which is left after purchase of mandatory annuity, up to the extent of 40% of the accumulated wealth at age 60, is fully taxable as per current IT act provision. Please note that, it is not mandatory for the individual to withdraw the whole corpus left after purchase of mandatory annuity. He/ She may opt to withdraw the balance amount in a phased manner. However, there is a need to withdraw a minimum of 10% of the accumulated corpus every year. This account has to be closed once the individual reaches the age of 70 years.

In case of untimely death of the NPS account holder before completion of 60 years of age, the nominee can withdraw the corpus accumulated at the time of death of the account holder. The money received by the nominee or legal heirs is fully exempt from tax.

The annuity which an annuitant receives periodically is taxable on yearly basis as per the tax slab applicable to individuals. This annuity will be considered as taxable income and hence will be added to other taxable income — such as pension income, employment income, or interest income—and the annuitant has to pay whatever tax is due on the total amount every year as per the marginal tax rate. But, as per the current tax slabs, any income of up to ₹3 lakh (basic exemption limit for persons above 60 years but below 80 years) is fully tax free.

Taxation of Annuity Plans in UK

In the UK there are two annuity markets: a voluntary market and a compulsory market. The voluntary purchased life annuity market (PLA) is open to any individual; annuity payments are treated as part of

income (which is taxed) and part of capital repayment (which is not taxed) assuming that investment was made using after-tax funds. The compulsory purchase annuity market (CPA), also known as pension annuities, is open only to individuals who have accumulated their wealth in a tax-exempt (or tax-deferred) DC pension plan and these annuity payments are taxed on the full amount as income when received, at the annuitant's marginal tax rate.

Taxation of Annuity Plans in UK/Implications on recent changes/Recent Budget 2014 announcements: At the moment people in UK don't have full flexibility when accessing their defined contribution pension during their retirement – 25% of the withdrawal from the retirement corpus on or after retirement is tax free and any withdrawal above this tax-free limit up to the remaining 75% of the corpus is subject to 55% tax. Some far reaching reforms in pension and related taxes on withdrawal have been announced in UK Budget 2014. As per this budget 2014 proposal, from April 2015, people aged 55 and over (whatever be the size of their DC pension pot) will only pay their marginal rate of income tax on anything they withdraw up to 75% from their defined contribution pension pot – either 0%, 20%, 40% or 45%. Withdrawal of the 25% of their pension pot will continue to remain tax free.

Taxation of Annuity Plans in USA/Canada

When an individual buy a life annuity to generate income in retirement, the source of the funds—the origin of the \$100,000 premium, for example—will affect the tax treatment of the income. There are really only two possible sources.

First, the \$100,000 might come from a tax shelter, such as a 401(k), IRA, or other such account (in Canada, an RRSP or MP plan). When these funds are used to buy the annuity, the individual have carried out a *qualified* life annuity transaction. (In Canada, it would be called a “*registered* life annuity.”) Remember that the defining characteristic here is that the individual have never really paid any income tax on this qualified (registered) money yet. The money contributed to the account was deducted from the taxable income—perhaps a long time ago—and no income taxes have been paid on the gains as this money grew over time. For this reason, when the annuitant reaches retirement around the age of 70 or so, he/she is required to start withdrawing money from these accounts and paying the income taxes which was not paid ever during the time of working and contributing. Here is the bottom line: If the individual use that tax-sheltered money to purchase the life annuity, then all of the income from the annuity is taxable. Technically, the taxpayer add this life annuity income to other taxable income—such as pension income, employment income, or interest income—and pay whatever tax is due on the total amount every year. Now, if there is little other income, or if the individual have large tax credits and/or deductions that he/she can take advantage of, it may end up paying very little tax. But 100% of the income is taxable. No exclusions or exemptions.

Alternatively, the annuitant can use a different pot of money to purchase a life annuity. The \$100,000 premium might come from “regular” funds that are not part of a dedicated retirement tax shelter. This source buys a *nonqualified* (*nonregistered* in Canada) annuity, and in this case, only a portion of the lifetime annuity income is taxable. After all, most of the money getting back was already taxed income from the hands of taxpayer. The actual amount that is taxable versus the non-taxable amount is determined by the insurance company that sells the annuity on the basis of tax rules set forth by the U.S. Internal Revenue Service (IRS) or, in Canada, the Canada Revenue Agency (CRA).

Here is an example helps to understand the so-called *exclusion ratio* so that one can determine how much of the income will actually be taxable. The basic economic principle at work is a comparison of how much invested in the life annuity (the \$100,000 premium, for example) with how much is expected to receive from the life annuity. In other words, the tax rules depend on the life expectancy at the time of

purchase and the number of payments an individual anticipates receiving. Note that the emphasis is on what *expect* to happen, not what actually happens. The tax authorities wanted to keep things simple in this case and fix the amount that is taxable as opposed to varying it from year to year. Say that, at the age of 65, you invested \$100,000 in a life annuity that promises \$550 per month, which is \$6,600 per year, or a pay-out rate of 6.6%.

According to the relevant IRS actuarial mortality table—one can expect to live approximately 20 years from the age of 65. If the annuitant makes it to age 85 (and no more), he/she may receive \$132,000 as total payments. Expectation is the key concept here. The annuitant is expecting \$32,000 more than he/she paid. So, that is the amount of gain that is expected to be taxed. Of course, the IRS will not tax on the \$32,000 all at once, and it cannot wait until you die (at age 85) to get the tax on the \$32,000, so it amortises the amount over the remainder of the (expected) life. Each payment received is partially taxed in proportion to the ratio of 32 to 100. A portion of total income, however, is not taxable; that is, it is “excluded” from taxable income. For clarity, **Exhibit 1** below provides an example of how the exclusion ratio is computed.

One final wrinkle can make things a bit tricky in the United States with the exclusion ratio. Although the majority of the income received will not be taxable, this favourable treatment comes to an end once the annuitant reach the life expectancy and have received \$132,000 in total payments. From that point onward, the entire income (which was \$550 in the earlier example) is fully taxable. The exclusion ratio goes to zero, so to speak. The reason, or justification, is that every dollar an annuitant receiving—after reaching age 85—is definitely more than the amount put in, so 100% of it is taxed. The beneficiary can claim a tax credit, however, on the final (i.e., year of death) tax return if the annuitant did not recover the entire premium while still alive.

Surprisingly, however, and in contrast to the United States, Canada’s tax authorities allows continuing to exclude the same portion of the life annuity income for as long as the annuitant live, even though he/she have received much more than the original premium back in payments. This treatment provides a generous tax break because the CRA uses outdated mortality tables that assume a lower life expectancy—especially when compared with the U.S. treatment, in which 100% of income becomes taxable at some point.

Regardless of whether the annuitant use qualified or nonqualified funds and whether lived long beyond the life expectancy, part of the life annuity income will be considered taxable—regardless of where the annuitant live or the jurisdiction in which the annuitant reside. So, one must consider the tax situation in general and other taxable income in particular before choosing a life annuity for a retirement portfolio. And—all else being equal, if individual have a choice—get the (taxable) life annuity in Canada if one do not mind receiving incomes in Loonies.

Exhibit 1. How Much of Nonqualified Annuity Income Is Taxable?

Life annuity premium (investment) \$100,000

Age at time of purchase 65

Guaranteed monthly income for life \$550

Life expectancy in months (IRS tables) 240

Total amount of payments expected $240 \times \$550 = \$132,000$

Exclusion ratio $\$100,000 / \$132,000 = 75.8\%$

Monthly income that is taxable $(100\% - 75.8\%) \times \$550 = \$133.33$

The entire \$550 is taxable after you reach life expectancy, age 85.

14. Possible Innovations in Annuity Products Design to meet new needs of Annuitants

New Annuity Product Opportunities in UK post Budget-2014/Partnership offers annuity with get-out clause: In May, 2014 one famous annuity provider in UK M/S Partnership unveiled its new “enhanced choice” annuity developed in direct response to the Budget-2014 pension reforms, which will allow savers to access their cash from April 2015. The enhanced choice annuity allows savers with pension pots of £10,000 or more to lock in a guaranteed lifetime income, which like an annuity will pay a higher income for those in poorer health or who smoke. But Partnership’s enhanced choice product offers the option to surrender after the first year (**get-out clause**), or continue. “This product is aimed at the 50 per cent of 65-year-olds with a health or lifestyle condition who may traditionally have bought an annuity but don’t wish to commit fully to purchase before the introduction of the new pension regime,” said Partnership. “This will give them access to their 25 per cent tax-free lump sum and a guaranteed income for life plus the ability to benefit if their health deteriorates, interest rates rise or they decide another option is more suitable. The consumer has complete choice and certainty.”

The enhanced choice annuity follows the launch of two new 12-month annuities in recent weeks, one by Just Retirement and the other by LV=. These aim to help savers access their pension cash but keep their options open, ahead of next year’s liberalisation of pension rules. Customers for these were automatically forced to exit after a year, and then pay commission, or an advisory fee, to buy another product.

“If interest rates go down, they can stay with Partnership with no reduction in income but, if rates increase, they can move,” said the company. The flurry of new annuity launches comes as concerns grow that products emerging in the wake of the Budget reforms are poor value. Ros Altmann, an independent pensions expert, has described some of the 12-month annuities deals as “awful”, with sales commissions as high as 2 per cent coming off the pension fund. “We need fair products for unsuspecting customers,” said Ms Altmann. “It’s not just the 2 per cent commission (for the first purchase), because they’ll need to pay more in a year again (when they buy another product). Freedom can work better than this.”

LV= said the fixed-term annuities were designed to give consumers some “breathing space” ahead of the pension reforms. “This product is designed to help retirees access their tax free cash and income now and defer making a long-term decision about their pension income until the new rules come into effect next year. In this way clients don’t limit their future options. “We would always encourage people to seek independent financial advice in order to ensure they get the most out of their pension fund.”

Whether these changes can be introduced in India?/What are the potentials?

- **Scope for Annuity Products with Greater Freedom and Choice to Pensioners as proposed in UK Budget-2014 Pension Reforms:** Indian pension market is too small and underdeveloped and pensioners are not so well informed unlike UK. Financial literacy level is pretty low. Above all there is no social security or state sponsored pension for the people in India. Under this back drop, it is not prudent to allow the DC pensioners in India at this time the full freedom and choice to decide whether to annuitise their pension corpus on retirement or not, or allow them flexible draw down over time. Rather steps should be taken to spread financial literacy among masses on retirement planning and also policy measures should be taken to develop the annuity and pension market here.
- **Scope for introducing new annuity products like Indexed, Variable and Impaired annuity in India:** Indian annuity market is very small and underdeveloped due to underdevelopment of a well-structured bond and debt market. We do not have index-linked

bonds. Inflation-indexed bonds have just arrived in the Indian market for the first time only very recently with the introduction of **Inflation Indexed National Saving Securities-Cumulative (IINSS-C)**. In Indian annuity market we have unit-linked pension plans (ULPP) products during accumulation phase, but we do not have same unit-linked annuity products, variable annuity products or impaired-life annuity products in the annuitisation phase. These innovative products can be introduced in the Indian annuity market.

We can also think of introducing micro-annuity products similar in line with micro-insurance products already introduced in the Indian market to cater to the economically weaker sections and try to bring them into the social security net. The main challenges for such products will be cost of managing such products (desirably it should be kept low like NPS) and the funding of such products for long term financial sustainability. **I would like to keep this as a separate study to be carried out later.**

15. Bibliography, References and Acknowledgements

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