

Post-retirement Income Generation Strategies

How & when to produce inflation-protected income from a retirement corpus

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Introduction

Thank you for downloading this e-book. Many people ask, “how can I utilize my retirement corpus to generate regular income”. The aim of this e-book, which is a compilation of discrete posts published at freefincal.com is to bring certain a key aspect of retirement planning:

- When should you settle for a regular income from an annuity plan and when can afford to take some risk with the corpus.
- Taking risk with the corpus means obtaining regular income from one portion while another portion is allowed to grow in a basket of securities. The aim here is to provide a pension or income that increase at some rate each year. Ideally this rate should increase close to inflation - at least 7 or 8% a year. One can settle for lower rates too.

The e-book contains several links to Excel calculators for a personalized analysis. The first three posts discuss traditional ways of managing a corpus.

1 How Annuity Plans Work

2 Investment options for senior citizens

3 Low interest rate regime: investment options for senior citizens

The fourth, asks the most important question.

4 When should senior citizens purchase an annuity?

If your corpus does not pass the test mention in this post, the rest of the e-book maybe of little relevance to you. You can then consider options mentioned in post 1,2 and 3.

The fifth post presents a way to answer four retirement planning questions.

5 Four Simple Retirement Planning Tools

The remainder of the e-book deals with the active management of a retirement corpus

6 Generating an inflation-protected income with a lump sum

7 Income Ladder Calculator

8 Inflation-protected Income Simulator

9 Illustration: Passive Income Generation

10 Illustration: Generating inflation-protected post-retirement income

How Annuity Plans Work

What is an annuity?

Annuity is nothing but a pension paid by the insurer in exchange for a lump sum.

The Lump sum is known as the **purchase price**.

The amount of pension is determined by the age at which we apply, the option we choose and also the purchase price. This is done with the **annuity rate**.

Pension = Purchase Price x annuity rate

A purchase price of one Lakh at annuity rate of 6% will provide a pension of $100000 \times 6\% = 6000$ a year.

This pension will be payable for a fixed duration - typically until death with other options available for the spouse or nominee to receive either lump sum after death of the pensioner or continue receiving pensions.

The pension is typically fixed. LIC offers an indexed pension - one that increases at the 3% a year. Privates like SBI offer up to 6% increase a year.

Each annuity plan has multiple options. Before we consider these in some detail, here are two important thumb rules when it comes to immediate annuity plans.

(1) If the annuity rate or the interest rate 'looks good' for an option it is because the annuity provider (the insurer) benefits more from it! Not you - the annuity recipient or the **annuitant**

(2) The earlier you buy an annuity, the lower the annuity rate. Therefore, *if possible*, it is prudent to postpone the purchase of the annuity.

The annuity has to be added to income and will be taxed as per slab. This rule *is not affected in any way by budget 2016*. *The government has unfortunately, perhaps inadvertantly, given the impression that buying the annuity is a way to escape all tax on EPF*. This is incorrect. If an annuity is purchased, one need not pay tax on the purchase price. The annuity or the pension received is fully taxable.

Annuity Options

Here is a list of annuity options available in [LIC Jeevan Akshay VI plan](#) [Opens in a new window](#). They should be reasonably self-explanatory.

Annuity Types for Jeevan Akshay VI

- | |
|--|
| i. Annuity (pension) for life then purchase price lost, no pension for spouse! |
| ii. Annuity for life, but if dead within 5/10/15/20 years spouse gets annuity for remainder of that period only. Then purchase price lost. If dead later, no pension for spouse and purchase price lost. If spouse dies early, purchase price lost. |
| v. Annuity for life with a provision for 50% of the annuity to the spouse of the annuitant for life on death of the annuitant. After death of spouse, purchase price lost. If spouse dies early, purchase price lost. |
| iv. Annuity for life increasing at simple rate of 3% p.a. Then purchase price lost, no pension for spouse! |
| iii. Annuity for life with return of purchase price on death to nominee |
| vii. Annuity for life with a provision for 100% of the annuity payable to the spouse of the annuitant for life on death of the annuitant, with return of purchase price on the death of last survivor. Purchase price will not be lost in this case. |
| vi. Annuity for life with a provision for 100% of the annuity to the spouse of the annuitant for life on death of the annuitant. After death of spouse purchase price lost. If spouse dies early, purchase price lost. |

i. Annuity for life simply means that the pension is paid out until we die and then the purchase price is lost. The spouse will get no pension. This is the best option for the annuity provider and the worst option for us! Therefore, the annuity rate is the highest! Why because it gambles on when we will die and when it can retain the purchase price! Imagine the gains the insurer makes if we die six months after buying the annuity! The best option for the insurer is independent of age.

So there should be a worst option for the annuity provider which should be the best option for us in terms of policy terms. However, since the annuity provider stands to lose a lot of money, the annuity rate will be the lowest. **This is how annuity plans work!!**

| *Think like an insurer (annuity provider)*

- [Ashal Jauhari](#)

The worst option for the insurer depends on when we buy the annuity (entry age).

Annuity rates for entry age 30,40, 50

Annuity Type Jeevan Akshay VI for different age of entries -->	30	40	50
i. Annuity for life then money lost, no pension for spouse!	7.19%	7.51%	8.14%
ii. Annuity guaranteed for spouse if dead with 15 years and for life thereafter.	7.16%	7.44%	7.95%
v. Annuity for life with a provision for 50% of the annuity to the spouse of the annuitant for life on death of the annuitant	7.08%	7.31%	7.76%
vi. Annuity for life with a provision for 100% of the annuity to the spouse of the annuitant for life on death of the annuitant	6.97%	7.12%	7.42%
iii. Annuity for life with return of purchase price on death	6.89%	6.93%	7.00%
vii. Annuity for life with a provision for 100% of the annuity payable to the spouse of the annuitant for life on death of the annuitant, with return of purchase price on the death of last survivor	6.86%	6.89%	6.93%
iv. Annuity for life increasing at simple rate of 3% p.a.	5.25%	5.61%	6.28%

These rates are illustrative for 1 Lakh purchase price. The actual rate depends on the purchase price and also mode of purchase (online or via agent)

Imagine a 30 or 40-year-old choosing a pension that will increase at 3% for life. Think about all the money that the insurer will lose! Therefore, the annuity rate for that option is the lowest!

Anyone less than 50 years of age should not buy an annuity unless absolutely essential. These rates are before tax. After tax, the rates will be quite low. With inflation around 8-10%, the purchasing power of the pension will only gradually decrease.

If the spouse is educated (financially that is!) then option *iii. annuity for life with return of purchase price* is a good idea. As pointed out by Mr Srinivasan at AIFW, the rates for this option do not depend much on age. Also the option will depend on the state of our finances - additional resources available etc.

Annuity rates for entry age 60

Annuity Type Jeevan Akshay VI for different age of entries -->	60
i. Annuity for life then money lost, no pension for spouse!	9.35%
ii. Annuity guaranteed for spouse if dead with 15 years and for life thereafter.	8.79%
v. Annuity for life with a provision for 50% of the annuity to the spouse of the annuitant for life on death of the annuitant	8.64%
iv. Annuity for life increasing at simple rate of 3% p.a.	8.03%
vi. Annuity for life with a provision for 100% of the annuity to the spouse of the annuitant for life on death of the annuitant	7.53%
iii. Annuity for life with return of purchase price on death	7.11%
vii. Annuity for life with a provision for 100% of the annuity payable to the spouse of the annuitant for life on death of the annuitant, with return of purchase price on the death of last survivor	7.01%

Notice that the worse option for the insurer has changed! The annuity provider hates either paying pension or increasing pension for long durations and/or parting with the purchase price!

Upon normal retirement, some fixed pension is always a good idea. However, if we go overboard it will be dangerous later in life.

Options iv or vi are reasonable choices (like in life, neither too bad for the annuity provider nor too bad for us!)

Annuity rates for entry age 70

Annuity Type Jeevan Akshay VI for different age of entries -->	70
i. Annuity for life then money lost, no pension for spouse!	12.08%
v. Annuity for life with a provision for 50% of the annuity to the spouse of the annuitant for life on death of the annuitant	10.56%
iv. Annuity for life increasing at simple rate of 3% p.a.	10.22%
ii. Annuity guaranteed for spouse if dead with 15 years and for life thereafter.	9.83%
vi. Annuity for life with a provision for 100% of the annuity to the spouse of the annuitant for life on death of the annuitant	9.37%
iii. Annuity for life with return of purchase price on death	7.26%
vii. Annuity for life with a provision for 100% of the annuity payable to the spouse of the annuitant for life on death of the annuitant, with return of purchase price on the death of last survivor	7.13%

Notice how at age 70, the insurer does not mind paying an increasing pension! It is always gambling on when how soon we will die!

Annuity options are good at this age because health will start failing and active management of resources will be difficult. If the spouse is of comarable age, then even option ii is not a bad idea (we can gamble on our death too!). So is vi.

Notice how the insurer hates option iii.

Typically annuity rates at the mid of the curve are reasonable in term of pension amount and features.

I would like to conclude by asking [When should senior citizens purchase an annuity?](#)

Use this link to determine if your net worth is enough for you to take risk in retirement (invest in a spread of asset classes one of which is equity) or if you have no option but to buy an annuity with all you net worth and hope for the best, which -if you excuse me for being pragmatic - includes a swift death with no prolonged hospitalization.

Update:

Ramachandra ShenoI points out (see comments below) that the age difference between pensioner and spouse matter for options where the spouse receives pension. He has pointed out the case of ICICI immediate Annuity Plan where this is the case. For the above mentioned LIC plan, age of spouse does not matter.

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Investment options for senior citizens

A look at investment options for Indian Senior citizens, taking into consideration, tax, liquidity, capital preservation and ability to generate an increasing pension. This is a dangerous topic to broach!

Before retirement, volatility is a friend and inflation a mandatory benchmark for a portfolio return to surpass. After retirement, volatility can either be a friend or a foe. This makes beating inflation an option to be exercised only if the corpus is big enough.

My point, the oft-asked question, “where should I invest?” should be answered after a holistic examination of fiscal health. Yet, it is extremely disappointing to sense the impatience in senior citizens who ask me this question, when I in turn question them about the corpus that they have and their requirements from it.

Many (well most) senior citizens are not interested in such an all-round examination. Their question was ‘where’ and they want only want products or avenues as answers. Filled with irritation, disappointment, and a sense of gratitude that I am not in financial advisory, I try my best to exit the conversation as quickly as I can.

This is a bit like going to the doctor and stating, “I have a cough, do not ask me any further questions and just prescribe”! This post is only meant for those willing to take a 360-degree view of their financial requirements and is not a simple list of investment options.

Step 1: Should my corpus generate income or should it grow?

That is, is my pension or mandatory annuity enough to take care of my expenses for at least the first few years in retirement? If not, how much extra income is required?

For example, if *average* monthly expenses = 25,000 and 17,000 is the monthly pension, about 8,000 is the income to be generated from the corpus in hand. Which takes use to the next step.

Step 2: Do I have the ability to generate an increasing pension?

If about 13.8 Lakhs were to be invested in a fixed deposit at 7% pa, the monthly payout would be close to 8,000.

If 13.8 L constitutes only 30-40% of the total corpus, the retiree can afford to increase the monthly payout. This is referred to as indexation. A simple indexation that might work is 3%. That is the monthly payout from the corpus should increase at at least 3%. An indexation of 6% would be nice, 8% would be pretty great. Government employees, thank to DA, twice a year enjoy double-digit indexation. This is a thing of the past, thanks to NPS.

A detailed and calculator for answering step 2 can be found in this post: [When should senior citizens purchase an annuity?](#)

If 13.8 L constitutes a significant chunk of the portfolio (say 50% and above), the retiree cannot afford to increase the monthly payout and has to contend with a constant payout by purchasing an annuity.

If I have enough corpus to allocate part (A) of it for my immediate income needs and let the rest (B) grow in a volatility-free portfolio or a diversified portfolio, the investment plan must be laid out: or rather the expected *reasonable*, and safe, post-tax return for parts A and part B.

Step 3: What is my tax slab?

A 0%, need to generate income with the full corpus: Senior Citizen Savings Schemes (SCSS), and safe fixed deposits. There is the risk (as in present times) that when the instrument matures, the rate would be much lower than earlier. That is a chance that one will have to take. Annuity products are okay, but the rate may be too low if purchased in the 60s.

Short-term and ultra-short term funds will work since no tax need to be paid. However, these are not free from risks. So I think, best avoided.

B 0%, part of the corpus can be allowed to grow untouched: This is probably unlikely!

C 10%, need to generate income with the full corpus:

Options are same as A, above. Debt funds do not make sense here. Any capital gains over and above the basic exemption will be taxed at 20% with indexation. This is likely to be more than the tax slab, except during periods of high inflation.

D 10%, part of corpus can be allowed to grow untouched:

In this case, it is best not to buy annuities. One can consider creating a fixed deposit [income ladder](#) Scheme like Senior Citizens Savings scheme (opened at Bank not PO, never PO!) can be used for two purposes: generate income and reinvest (a part of) it in say a flexi-deposit account.

A small portion, say about 10-20%* can be invested in a say a balanced fund, *provided it is allowed to grow for at least 7+ years.*

E 20%, need to generate income with the full corpus:

Options are same as A, above. Debt funds (in part) can be used to generate income as there is a possibility that with indexation, the capital gain will reduce and effective tax rate will be lower than 20%. However one needs to be cautious and stick to liquid and ultra short-term funds here.

F 20%, part of corpus can be allowed to grow untouched:

A mixture of fixed deposits, SCSS and debt funds for income generation.

Debt funds + equity funds (suggest 20-30%)* for the portion that can grow untouched.

G 30%, need to generate income with the full corpus:

This is either unlikely or a sign of trouble! Options same as A along with debt funds.

H 30%, part of corpus can be allowed to grow untouched:

If (and only if) comfortable, income can be generated with debt funds alone.

Debt funds + equity funds (suggest 30-50%)* for the portion that can grow untouched.

(*) The equity allocations mentioned above are a percentage of corpus B alone and not the entire corpus.

If a part of your corpus can grow untouched, I have a series of posts and calculators for your consideration:

[Generating an inflation-protected income with a lump sum](#)

[Illustration: Generating inflation-protected post-retirement income](#)

[Inflation-protected Income Simulator](#)

Caution

I have seen the recommendations made by financial advisors and financial planners to retirees and it make me disappointed and scared in equal measure. There are too many advisors out there who project unrealistic equity returns and unsafe allocations for retirees.

It is your money. If you lose it, you do not have the chance to earn it back again. Do not trust the recommendation of any financial advisor blindly. Double-check and triple-check. Remember that most of them are product-sellers.

It is up to you to take a holistic decision about your money. Seeking piece-meal advice can destroy your mental peace.

I am no expert. In fact, I am a nobody. My only qualification to write this article is that I always believe that to err on the side of caution is the key element in retirement planning. So do not follow anything in this post unless you follow it up with a thorough investigation.

- 1) Higher return cannot be achieved without taking on higher volatility
- 2) There is no free lunch. You cannot eat your cake and have it too.
- 3) Do not invest in a new product after retirement, unless you have understood all the risks. Please recognise that product sellers will not sell risk!.

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Low interest rate regime: investment options for senior citizens

The RBI has cut interest rates thrice this year. On the one hand, this has made those who are using equity to accumulate wealth happy, as it could mean the start of a bull market driven by growth and not hope. On the other hand, this development has worried senior citizens who are used to the comfort of “high-interest rate” fixed deposits.

“The banks has slashed FD rates. Where else can I invest now?” is a question being asked by many senior citizens today. This is a discussion on investment options available for senior citizens in a low-interest rate regime.

This is a dangerous area to tread on. One mistake and the senior citizens net worth will take a hit. Many senior citizens want piece-meal solutions to this issue and refuse to take a holistic view of the matter.

If someone is looking

- for an alternative fixed deposits for the first time in their lives, they need to understand the risk vs reward equation for different fixed-income instruments in some detail before proceeding.
- at equity as an alternative to fixed deposits, then they should stop looking!
- at debt funds to ‘get more’, they should recognise how volatile they can (observe annual returns at value research for any debt which has been around for about 10Y)
- to increase equity exposure in the hope of a bull run, they should check if they have a large enough corpus to take on such a risk

I could go on and on.

How much volatility a senior citizens portfolio ought to stomach (assuming the appetite is high) is an extremely tricky subject. The current withdrawal rate is often cited to set up a thumb rule.

Current withdrawal rate = expected annual expenses/current portfolio value.

If you have an assured pension then you could write

Current withdrawal rate = (expected annual expenses- pension after tax)/current portfolio value.

Portfolio here refers to your investment other than your pension or the amount used to purchase the annuity.

Is is for these investments that an alternative is being sought for.

If this is 3-4%, a reasonable amount of volatility is generally acceptable.

5-7% some volatility is ‘okay’, but how much is ‘some’ is hard to ascertain. It is a ‘cat on the wall’ situation.

Anything above that implies the corpus is too small and is fit only to generate a fixed annuity.

A detailed explanation with a calculator is available here [When should senior citizens purchase an annuity?](#)

A more generic [investment options for senior citizens](#) has been published before.

In this post, I would like to focus on fixed deposit alternatives for those who do not have much experience with mutual funds. If you need professional help, consult a fee-only financial advisor.

If you want truly fixed income then you will need to lock up your money: Then **senior citizens savings scheme** can be a decent option. However, one can invest only up to 15 Lakhs. The payout is quarterly and is taxable as per slab. As Ashal pointed out at FB group, Asan Ideas for Wealth, get this from the bank and not post office.

Equity Mutual Funds Stay away unless your withdrawal rate is low enough.

Co-operative bank and corporate fixed deposits Stay away

Debt mutual funds:

Fixed income products like a fixed deposit or recurring deposit or a bond which is not sold in the secondary market are extremely simple to understand. Simply because they are truly fixed income products. Take such a product and allow it be traded in the market, its value will change on a day to day basis.

Its value can increase or decrease sharply when interests rates change or when the credit rating of the issuer changes.

Read more: to understand the impact of these changes in detail from these posts:

[Understanding Interest Rate Risk in Debt Mutual Funds](#)

[Understanding Credit Rating Risk in Debt Mutual Funds](#)

[Debt Mutual Funds: Risk vs. Reward](#)

[Lessons from the JP Morgan – Amtek Auto Debacle](#)

[Investing in debt mutual funds: slow and steady wins the race!](#)

Now the upshot of these posts for first-time debt mutual fund investors is this:

- stick to so-called ultra-short term funds which invests in short-term (few months) bonds of banks, PSUs and high-rated companies. You can consider short-term banking and PSU funds if you don't want to take on credit risk from corporate bonds
- As Mr. Raghu Ramamurthy (my oldest patron at 87) often mentions, short-term gilt funds are more than a decent alternative to those who do not want to expose their portfolios to credit risk. However, the NAV of such funds can fall and be in the red for at least a few weeks if there is a sudden increase in interest rates. Read more: [Comparison: Short-term gilt vs. long-term gilt vs. Ultra short-term mutual funds](#)
- Stay from corporate bond funds or at least do not have significant exposure to them. If you like corporate bond funds, stick to established AMC's like Franklin which will not have too much exposure to a single bond (something that JP Morgan did)
- Stay away from monthly income plans. There are not for income!! One need to stay invested for 5+ years (preferably 7Y) to see 'decent' returns.
- Stay away from long-term gilt funds. They are for trading.
- **Never forget that past performance cannot sustain in debt funds.** Just like FD rates, their returns are cyclic too. So do not expect too much more return.

I have assumed that you are in the 20% or 30% slab. For those in 10% slab, a debt mutual fund is not tax efficient.

[Arbitrage mutual funds](#) or [equity savings funds](#) can offer anywhere between 6-8% returns which are tax-free if held for over one year. A small exposure to such funds is not a terrible idea.

This is as far as my thinking takes me.

Conclusion: There is no free lunch. Simple products would offer low returns (senior citizens savings scheme is an exemption), would be taxed as per slab and will have a lock-in.

Products will better taxation, liquidity and *potential* for better returns will come volatility tagged. Selection requires study.

Caution: If an advisor suggests a complete overhaul in your portfolio, get a second opinion. Do not proceed blindly.

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When should senior citizens purchase an annuity?

Sometimes purchasing an annuity is the best option for senior citizens (or someone in the late 50s) and sometimes it is the worst decision. This is a discussion on when to buy an annuity and when not to buy (at least immediately upon retirement).

An annuity or a pension product is one in which a lump sum is given to an insurer like the LIC in exchange for monthly pension. Typically this pension is constant or at best increases 3% each year (the same as govt salary increments!). There are various options like a pension to spouse upon the death of the annuitant or return of the corpus used to generate the corpus etc.

The annuity rate or the return offered by the insurer for the corpus depends on the age of the annuitant the option chosen upon his/her death. Typically, older the person, better the rate. Typically, when the insurer gets to keep the corpus, the rate is higher!

For a young person, far away from retirement, a pension product or a deferred annuity product is a terrible choice. [Here is why you should stay away from pension plans](#).

However, for a middle-aged person close to normal retirement (say 60), the decision to buy an annuity depends on the corpus that they have the kind of pension they are already eligible to get (mandatory annuities).

Via an illustration and a calculator, let us discuss the titular question. The core of this calculator is the same as the [checklist and calculator for early retirement in India](#). For budding early retirees, I proposed a 3-bucket strategy (first 15 years, middle 15 years and last 15 years in retirement).

For normal retirement (at 60, say), I propose a 2-bucket strategy (first 15 years and last 15 years, that is up to about age 90) to decide on the annuity purchase.

Illustration

Carl and Ellie are both aged 60 (convenient!). They need about Rs. 5 Lakh to manage their expenses. Assuming they have a nice fat emergency fund and this Rs. 5 Lakh includes their health insurance premium, let us now evaluate their retirement plan.

For the purpose of illustration, we will set the volatility free, post-tax interest rate as **6%** throughout the retirement period (age 60-90). Easy to criticise this, easier to set variable rates in an Excel, but difficult to predict how rates will pan out in future. We need to be conservative and pray for luck. Considering that Carl and Ellie are in the 10% slab, and likely to remain so for the remainder of their lives, I am happy about working with 6%.

The rate at which the pension or annuity is going to increase is set to **8%**. Again easy to argue that real life inflation is above that, but it is not practical to set the inflation or indexation rate any higher.

The couple has a constant pension of Rs. 3L per year. So about 60% of expenses in the first couple of years can be met with this pension. This is also included for calculating retirement corpus necessary.

In order to meet the expenses (increasing at 8%) after accounting for the pension, from age 60 to age 75, Rs. 54.9L is necessary. This amount could simply be put in a mixture of debt funds or one could create a fixed deposit [income ladder](#), which maybe better since the couple is in the 10% slab.



Carl and Ellie from the movie, 'UP' (2009). Pixar Animation Studios

Similarly, with 8% inflation indexation and 6% post-tax, volatility free return from age 76 to 90, the couple would need about 2.4 Cr! The pension received is also accounted for.

Thankfully, they need this 2.4 Cr only 15 years from now. So if they invest about Rs. 57.7 lakhs in a portfolio which could offer 10% XIRR after taxes (possible with about 60% equity), they could achieve this 2.4 Cr.

So the total corpus required at age 60 is, Rs. 54.9 L (for first 15 years) + 57.7 L (to be invested for 15years) ~ 1.1 Cr.

What are the chances that a couple in the 10% slab would have such a corpus?

If they do have a sum close to 1 Cr, they need not purchase an annuity (constant pension, which will not increase to match inflation).

If they have a sum much less than 1 Cr, they cannot afford the luxury of investing about 30% of their corpus in equity as in the above illustration. A poor sequence of returns from equity will destroy their retirement.

The whole point of this post is, when to purchase an annuity and when not to.

Here is a simple strategy (incorporated in the calculator):

Case 1: Carl and Ellie have a corpus of Rs. 50L or less. This is lesser than the Rs. 54.9 L needed for receiving an indexed pension for the first 15 years. Therefore, there is no option but to purchase an annuity

Case 2: Carl and Ellie have a corpus of Rs. 60L or less.

If 54.9L is used to produce indexed pension for the first 15 years, the remaining sum must grow at 29% (call this target return) for 15 years to grow to 57.7L.

Obviously this is silly. Verdict: buy annuity!

Case 3: Corpus: 70L. Target portfolio return: 20%. Verdict: buy annuity

Case 4: Corpus: 80L. Target portfolio return: 16%. Verdict: buy annuity (still too risky)

Case 5: Corpus: 90L. Target portfolio return: 14%. Verdict: buy annuity (still too risky)

Case 6: Corpus: 95L. Target portfolio return: 13%. Verdict: buy annuity (debatable, but I would not risk it)

Case 7: Corpus: 97L Target portfolio return: 12%. Verdict: don't buy annuity (at last!)

Case 8: Any corpus above 97L, don't buy an annuity at least immediately. As long as able, manage the portfolio to generate inflation protected income.

Thus, unless the couple has a portfolio which is 85% or higher than that required to generate inflation protected income, buy an annuity is better than investing part of the corpus in equity and taking a chance.

Of course, these are subjective guides based on

[What Return Can I Expect From Equity Over the Long term? Part 1](#) and

[What Return Can I Expect From Equity Over the Long term? Part 2](#)

If you wish to generate an indexed pension and manage your money professionally, there is the real danger of your advisor setting too large a return for equity and therefore for the entire portfolio. Seek out a [fee-only planner](#) (no product commissions), [pay for Financial Advice, but Insist on Direct Mutual Fund Plans](#) .

Evaluate the advice given to check if it is practical. Do not implement unless you are absolutely comfortable. One wrong move in retirement would be disastrous.

[Download the “when should I buy an annuity?” calculator](#)

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Four Simple Retirement Planning Tools

April 19, 2014

Whether you are contemplating early retirement or are close to your natural retirement, here are four simple calculators that can answer four important questions:

1. What is the corpus required for financial independence in retirement?
2. How long will my retirement corpus last?
3. How much can I withdraw from my corpus each year?
4. What is the rate of return required for financial independence?

This sheet is an update to the previously published [Excel inflation-indexed annuity calculators](#)

Question no. 4, the rate of return required for financial independence is probably the most important question for any retiree.

If this is too large,

- for someone heading towards natural retirement, this means that the corpus is too small for **active management** and an annuity may have to be purchased.
- for someone seeking financial independence and early retirement, this means a postponement in retirement

When I published the previous version, I was under the impression that the rate of return cannot be determined directly and had to be done using Excel's Goal-Seek function. So I had put in a Macro to do this like I did in the [step-by-step guide to goal-based investing](#)

Mr. Raghupathy Masilamani, wrote in suggesting that instead of a macro a simple formula can be used to calculate the rate of return when inflation is involved:

$\text{Return(\%)} = \text{ROUND}(\text{RATE}(\text{years}, -\text{payment2}, \text{corpus2}, 0, 1) * (1 + \text{inflation2}) + \text{inflation2}, 2)$

I have now incorporated this delightfully simple suggestion. A big *thank you* to Mr. Masilamani for educating me in this regard.

[Download the Excel inflation-indexed annuity calculators](#)

A standard retirement calculator is also included.

Thank you for reading. You may also like

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Generating an inflation-protected income with a lump sum

Given a lump sum, how do we invest it in order to create a reliable income stream that is risk-free and has the ability to keep pace with inflation?

This is the most crucial question that concerns every person who is retired, nearing retirement, or planning for someone else's retirement (a client or a parent perhaps). Well, at least it ought to be!

The answer concerns **everyone** since we all have to answer this question at some point in our life.

This post is an offshoot of a discussion with Vignesh Bhaskar in Asan Ideas for Wealth, FB group. Not much information is available on inflation proof post-retirement investment strategies for the Indian scenario. Let us try and discuss this here from time to time.

Most questions have more than one solution. This is no different. There are many ways of creating a reliable inflation-protected income stream. In this post, I will discuss only one such way.

The best way to do this is via an illustration.

Let us say that I am a retiree, aged 60, with Rs. 30,000 monthly expenses (involving only the retiree and dependents) or Rs. 3,60,000 per year. Perhaps a touch on the lower side.

I make the following assumptions

- Inflation throughout the retiree lifetime: 8%
- Inflation-protected income required for: 25 years That is up to 85 years. Perhaps 30 years would have been better, but let us work with 25.
- Medclaim: Available. Premium expenses included in the annual expenses.
- Emergency fund: Available. A sum equal to 1 year's expenses. This is not part of the retirement corpus.

Now we will need to **calculate the corpus required**

I have assumed that I pay a flat 10% tax on all investments throughout my lifetime. This is indeed an oversimplification. Unfortunately, we will need to use this, as it will be confusing to consider other possibilities.

A post-tax return of 8% may seem a bit unrealistic. However, if a retiree in the 10% tax slab opts for fixed deposits offering 9% for senior citizens (current rates), the post-tax return is about 8%.

Using the **annuity calculator**, we determine the corpus required

Inputs

Payout required in the first year of retirement: Rs. 3, 60,000

Inflation: 8%

Post-tax return: 8%

Duration: 25 years

Output

Corpus required: **Rs. 90,00000 or Rs. 90 Lakhs**

If I have an amount close to this or higher than this, I can relax.

What if I have a corpus less than 90 Lakhs? What should I do?

In order to answer this and the question posed in the opening sentence, let us first try to understand **why I need Rs. 90 Lakhs** given the other inputs.

If I divide this 90 Lakhs into 25 parts, each part is equal to 3.6 Lakhs. This is just the amount I need for meeting my expenses in the first year of retirement.

- I keep aside one part for meeting the first years expenses.
- I then open 24 fixed deposits. Each maturing one year after the other. That is the first FD will mature after one year, the second FD after two years ... the last FD after 24 years.
- When the 1st FD (investment = 3.6 L) matures, I will get 3.88L enough to meet expenses in the 2nd year of retirement (here expenses have been inflated by 8%)
- When the 2nd FD (investment = 3.6 L) matures, I will get 4.19L enough to meet expenses in the 3rd year of retirement (here expenses have been inflated by 8%)
-
-
- When the 24th FD (investment = 3.6 L) matures, I will get 22.8 L enough to meet expenses in the 25th year of retirement (here expenses have been inflated by 8%)

Here is an illustration which explains why I need 90L

Years in retirement	Fixed Deposit. All FDs are opened in year 1					Annual Expenses
	investment	year FD opened	post-tax return	Duration	Maturity	
1	3,60,000	1	8.00%	1		3,60,000
2	3,60,000	1	8.00%	2	3,88,800 →	3,88,800
3	3,60,000	1	8.00%	3	4,19,904 →	4,19,904
4	3,60,000	1	8.00%	4	4,53,496 →	4,53,496
5	3,60,000	1	8.00%	5	4,89,776	4,89,776
6	3,60,000	1	8.00%	6	5,28,958	5,28,958
7	3,60,000	1	8.00%	7	5,71,275	5,71,275
8	3,60,000	1	8.00%	8	6,16,977	6,16,977
9	3,60,000	1	8.00%	9	6,66,335	6,66,335
10	3,60,000	1	8.00%	10	7,19,642	7,19,642
11	3,60,000	1	8.00%	11	7,77,213	7,77,213
12	3,60,000	1	8.00%	12	8,39,390	8,39,390
13	3,60,000	1	8.00%	13	9,06,541	9,06,541
14	3,60,000	1	8.00%	14	9,79,065	9,79,065
15	3,60,000	1	8.00%	15	10,57,390	10,57,390
16	3,60,000	1	8.00%	16	11,41,981	11,41,981
17	3,60,000	1	8.00%	17	12,33,339	12,33,339
18	3,60,000	1	8.00%	18	13,32,006	13,32,006
19	3,60,000	1	8.00%	19	14,38,567	14,38,567
20	3,60,000	1	8.00%	20	15,53,652	15,53,652
21	3,60,000	1	8.00%	21	16,77,945	16,77,945
22	3,60,000	1	8.00%	22	18,12,180	18,12,180
23	3,60,000	1	8.00%	23	19,57,155	19,57,155
24	3,60,000	1	8.00%	24	21,13,727	21,13,727
25	3,60,000	1	8.00%		22,82,825	22,82,825
Total copus available is 90 Lakhs. inflation assumed to be 8%						

Suppose I do not have 90 L. Can I work with a lower corpus and yet manage to generate inflation protected income?

To a certain extent, it is possible. Of course, as must be obvious, one will need to generate a higher rate of return. This implies taking on some risk ... with a part of the corpus.

In order to understand this, we will need to discuss about the so-called **bucket strategy**

The best way to do that is to use the above numbers.

Instead of opening 24 FDs, I can achieve the same result in a different.

- I keep away 3.6L for the 1st year.

- I open 4 FD for 3.6L maturing one year after another as mentioned above.
- This will give me inflation-protected income for the first 5 years in retirement.
- This is called **income laddering** (also one form of FD laddering)

I invest 18L in an FD that matures in 5 years. Let us call this **bucket I**

I invest 18L in an FD that matures in 10 years. Let us call this **bucket II**

I invest 18L in an FD that matures in 15 years. Let us call this **bucket III**

I invest 18L in an FD that matures in 20 years. Let us call this **bucket IV**

- **Bucket I** will mature to 26.44 L. I then split this up into 5 parts, keep one for managing expenses in the 6th year of retirement and use the remaining parts for managing expenses in years 7 to 10 by income laddering.
- Similarly, **bucket II** will mature to 38.86 L. I then split this up into 5 parts, keep one for managing expenses in the 11th year of retirement and use the remaining parts for managing expenses in years 12 to 15 by income laddering.
- ... and so on.

Here is an illustration

Years in retirement	Fixed Deposit					Annual
	investment	year FD opened	post-tax return	Duration	Maturity	Expenses
1	3,60,000	1	8.00%	1		3,60,000
2	3,60,000	1	8.00%	2	3,88,800 →	3,88,800
3	3,60,000	1	8.00%	3	4,19,904 →	4,19,904
4	3,60,000	1	8.00%	4	4,53,496 →	4,53,496
5	3,60,000	1	8.00%		4,89,776	4,89,776
6	18,00,000	1	8.00%	5	26,44,791	Bucket I
6	5,28,958	6	8.00%	1		5,28,958
7	5,28,958	6	8.00%	2	5,71,275	5,71,275
8	5,28,958	6	8.00%	3	6,16,977	6,16,977
9	5,28,958	6	8.00%	4	6,66,335	6,66,335
10	5,28,958		8.00%		7,19,642	7,19,642
11	18,00,000	1	8.00%	10	38,86,065	Bucket II
11	7,77,213	11	8.00%	1		7,77,213
12	7,77,213	11	8.00%	2	8,39,390	8,39,390
13	7,77,213	11	8.00%	3	9,06,541	9,06,541
14	7,77,213	11	8.00%	4	9,79,065	9,79,065
15	7,77,213		8.00%		10,57,390	10,57,390
16	18,00,000	1	8.00%	15	57,09,904	Bucket III
16	11,41,981	16	8.00%	1		11,41,981
17	11,41,981	16	8.00%	2	12,33,339	12,33,339
18	11,41,981	16	8.00%	3	13,32,006	13,32,006
19	11,41,981	16	8.00%	4	14,38,567	14,38,567
20	11,41,981		8.00%		15,53,652	15,53,652
21	18,00,000	1	8.00%	20	83,89,723	Bucket IV
21	16,77,945	21	8.00%	1	18,12,180	16,77,945
22	16,77,945	21	8.00%	2	19,57,155	18,12,180
23	16,77,945	21	8.00%	3	21,13,727	19,57,155
24	16,77,945	21	8.00%	4	22,82,825	21,13,727
25	16,77,945		8.00%			22,82,825
Total corpus available is 90 Lakhs. inflation assumed to be 8%						

In essence, instead of creating an income ladder for 25 years, as mentioned in first scenario, we create an income ladder for the first 5 years, let the rest of the corpus compound in **four buckets**, and create new income ladder every five years.

I have assumed that all the buckets compound with the rate of return (8%). So there is no difference between the first and second scenarios. In effect the total *corpus needed is the same*.

What if, some of the buckets compounded with a higher rate of return?

Can I then not reduce the total corpus required?

Yes, this is indeed possible. Here is a list of different return scenarios. Thanks to Captain Ashok Kumar Anand for pointing out an error in this table. It has now been corrected.

	Income Ladder	Corpus needed to create income ladder for					Total corpus required
			Bucket I	Bucket II	Bucket III	Bucket IV	
	Scenarios	years 1-5	years 6-10	years 11-15	years 16-20	years 21-25	
		18,00,000	26,44,791	38,86,065	57,09,904	83,89,723	
	Investment duration	immediate	5 years	10 years	15 years	20 years	
1	Rate of return reqd. to create the corpus	not applicable	8%	8%	8%	8%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	18,00,000	18,00,000	18,00,000	90,00,000
2	Rate of return reqd. to create the corpus	not applicable	8%	8%	10%	10%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	18,00,000	13,66,906	12,47,079	80,13,985
3	Rate of return reqd. to create the corpus	not applicable	8%	8%	10%	12%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	18,00,000	13,66,906	8,69,735	76,36,641
4	Rate of return reqd. to create the corpus	not applicable	8%	9%	10%	12%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	16,41,516	13,66,906	8,69,735	74,78,157
5	Rate of return reqd. to create the corpus	not applicable	8%	9%	10%	14%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	16,41,516	13,66,906	6,10,451	72,18,872
6	Rate of return reqd. to create the corpus	not applicable	8%	9%	10%	14%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	16,41,516	10,43,178	6,10,451	68,95,145
7	Rate of return reqd. to create the corpus	not applicable	8%	9%	12%	14%	
	Principal reqd. to create the corpus	18,00,000	18,00,000	14,98,246	10,43,178	6,10,451	67,51,875

Notice that the returns associated with different buckets have been varied. The first scenario, of course corresponds to the one detailed above.

Notice that as you increase the return in different buckets, preferably the ones which you will need 10, 15 and 20 years later, the corpus required comes down quite sharply from 90 L to 67.5 L

How can I go about achieving this?

Here are some examples

Low risk

Bucket 1 (5Y duration): FDs

Bucket 2 (10Y): Debt 'income' funds

Bucket 3 (15Y): Balanced funds (25% equity)

Bucket 4 (20Y): Balanced funds (65% equity)

Medium risk

Bucket 1 (5Y duration): FDs

Bucket 2 (10Y): FDs

Bucket 3 (15Y): Balanced funds (65% equity)

Bucket 4 (20Y): Diversified equity

High risk

Bucket 1 (5Y duration): FDs

Bucket 2 (10Y): Debt 'income' funds

Bucket 3 (15Y): Diversified equity

Bucket 4 (20Y): Diversified equity

How to decide what to do?

This is a tough question!

- If I have 90L+ I can afford to choose the *no-risk* option (all buckets in FDs)
- If I have ~ 80L I will need to take some risk and invest buckets 3 and 4 in high return, tax-efficient instruments
- If I have ~ 70-75L I will need to take much more risk and invest buckets 2, 3 and 4 in high return, tax-efficient instruments. Do I have the stomach for this? If I don't, **I will have to choose a constant annuity from an insurer and my income will have little or no inflation-protection**
- If I have less than 70L, it is too risky to use buckets. I will have to resign myself to the fate of receiving constant annuity
- **Note:** This is a 'all-in' strategy. That is once you choose the bucket approach, seeking annuity later in life may not (or may!) give you a decent pension. So you will need to consider your health into the equation (thanks to Subra for pointing this out). Are you fit enough to manage your own corpus?

What would you do?

Are you doing enough to ensure that you don't face the prospects of constant annuity?

I apologise for the heavy content of this post. If you have made it this far, thank you! If you need clarifications on any aspect of the post, please feel free to ask.

I have an associated calculator. If you are interested in it, let me know, and I will post the download link.

[Download the Inflation-protected Income Simulator](#)

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Income Ladder Calculator

There are times when we have a large sum of money to be spent, not in one-shot, but over the course of a few years. Retirement of course is the most obvious and most complicated example wherein the corpus has to last from a few years to decades. There can other situations: a person who works in a salaried job wanting to start a business may desire to use a corpus to guarantee certain expenses (eg. school or college expenses) for a certain number of years until his business picks up. An expecting mother who may/will not be working for the next few years, a person who is working in a shaky job may all have such requirements.

An **Income Ladder** can be used for such requirements. The idea is to take a lump sum, divide it into many parts and lock them into fixed-income instruments (most popular being bank FDs) of differing durations to provide guaranteed sums each year to meet expenses. An inflation factor by which expenses can increase each year should also be taken into account. The main advantage of this method is it give one peace of mind that expenses for a fixed number of years is guaranteed. *This is not just a calculation but also set of specific investments steps to be followed.*

A simple example can illustrate this better: Suppose I need:

1 lakh for one year starting now

1.1 lakhs for one year, 12 months later, (10% inflation) and

1.21 Lakhs for one year 24 months later.

To create an income ladder, one lakh is kept away for meeting expenses for the first 12 months. Then one lakh is invested in a fixed deposit for one year offering a return of, say, 10% per anum (dream on!) and one lakh in a second fixed deposit for two years (@10% pa). The first FD matures after one year and provides for expenses in the second year. The second FD matures after two years and provides for expenses in the third year. This way using a corpus of 3 lakhs a total expense of 3.31 lakhs over 3 years can be covered. Let us call this method 1.

Another way to do it is to open FDs which pay out interest annually. This way the expenses for the second year will be met by the first FD *and* the interest from the second FD (call this method 2). A more detailed example can be found [here](#).

Which method is better? This depends on the how the interest rates change with duration. Sometimes higher rates are given for shorter durations. In this case typically method 1 will result in a lower corpus requirement. If higher rates are given for longer durations then method 2 will result in a lower corpus. However the difference between the corpus's is not that significant.

Inspired by and based on the ideas outlined at [incomeladders](#) I have made an Income ladder calculator. The ladder can be created for up to 14 years (I got bored at 14 and stopped. If you want it for longer, you can either extend it yourself or contact me). The calculator is fairly self-explanatory to use.

One of the most important usages of an income ladder is during retirement. One creates an income ladder and ensures expenses for the first 8-10 years of retirement are taken care of. This provides the retiree 'peace of mind' to invest the rest of the corpus in growth instruments of varying risk as outlined in the ['retirement bucket strategy'](#).

Can you think of any other situation where such an income ladder will be useful?

[Download the Income ladder calculator \(.xlsx file\) \(updated Nov 2013. Now supports up to 16 years\)](#)

[Download the Income ladder calculator \(.xlsx file\)](#)

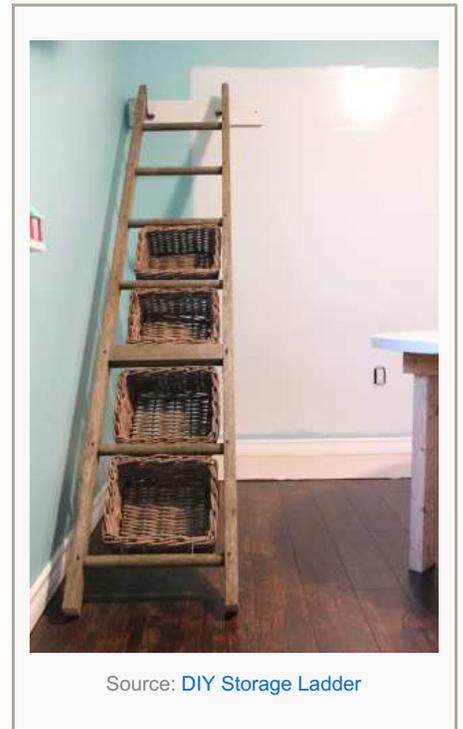
[Download the Income ladder calculator \(.xls file\)](#)

Here is set of **annuity** or '**how long will my money last?**' calculators. How different is the Income Ladder from these?

[Annuity Calculators \(.xlsx file\)](#)

[Annuity Calculators \(.xls file\)](#)

[How long will my money last?](#)



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Inflation-protected Income Simulator

Last week I wrote about an inflation protected income can be generated by dividing a corpus into 4/5 portions and investing each into financial instruments of varying risk and tenure, while setting up an [income ladder](#) for the first few years. As the investment in each bucket matures a new income ladder will be set up with it.

If you have not read that post, I strongly suggest you read it first and then get back to this one: [Generating an inflation-protected income with a lump sum](#)

I was surprised by the popularity of that post and received many requests to post a calculator with which different possibilities based on this strategy can be simulated. This post describes such an inflation-protected income simulator.

The calculator has two sheets:

- **Single Bucket Income Ladder** This helps to understand what an income ladder is.

The idea is to invest in fixed-income instruments of varying maturity. The maturity value of each investment corresponds to the income needed that year taking an assuming rate of inflation into account. For more details see [here](#)

This is an offshoot of my popular [income ladder calculator](#) This describes two ways of creating the ladder: cumulatively or with payouts.

Last weeks post and the present calculator assumes investments are cumulative.

- **0+6 Buckets income ladder**

This sheet allows you to *determine the total corpus required to generate an inflation-protected income for desired period (a maximum of 210 years!!)*.

This period can divided into a maximum of 7 buckets of varying risk (as determined by the return).

When the buckets mature, an income ladder of some assumed return is set up to generate income.

The calculator is flexible, and the buckets can be constructed with different tenures and different returns.

Note: Please use appropriate post-tax returns everywhere.

This is a deterministic simulator. That is the returns are assumed to be fixed. If you use higher returns, they are likely to be associated with a [non-zero standard deviation](#) and therefore, volatility. This will have a huge impact on the final results.

If you are interested in trying out buckets with volatility, try out this popular and addictive: [Retirement 'Bucket Strategy' Simulator](#)

[Download the Inflation-protected Income Simulator](#)

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Illustration: Passive Income Generation

Suppose I have 70 lakhs with me and would like to generate an inflation-protected income for as long as possible, how and where should I invest?

The following is based on the [Inflation-protected Income Simulator](#), and a thread at facebook group, Asan Ideas for Wealth (some inputs have been modified)

A more detailed [how to generate inflation-protected income from a lump sum](#) can be consulted by those interested.

Primary questions:

1) How much inflation can I afford to assume? The monthly income from the corpus will increase by this rate. The initial monthly expense is Rs. 25,000 per month.

2) How long can I generate such an increasing income?

Obviously, there is a tradeoff involved. The longer I want the income, the lower should it increase each year and vice-versa.

the maximum duration I can work with in the above simulator is 35 years. For this, an inflation of about 6% can be chosen. This is quite reasonable.

Assumption: I have adequate emergency fund and health cover.

Strategy:

1. Create an income ladder with fixed deposits for first 5Y. A income ladder is one in which FDs (@ 8-7%) mature at the start of each for 5Y. The expenses for that year are covered with this maturity value. Use this [income ladder calculator](#) [Opens in a new window](#) to explore this option more. About 21% of 70 Lakhs ~ 15 Lakhs will be necessary for this.
2. Similar income ladders will have to created for years 6-10 and for years 11-15. This means we can invest a sum for 5 years and then create the 2nd income ladder (@ 7%). Invest a sum for 10 years and then create the 3rd income ladder (@ 7%). For less than 10Y, I would prefer not to take any excessive risks. Therefore I would like to invest an amount which can be used for income ladders 2 and 3 in debt mutual funds(@ 7%). This is about 27.5 Lakhs.
3. I can similarly calculate the sum required to create income ladder 4 (years 16-20). Investment duration available =15 years income ladder 5 (years 21-25). Investment duration available =20 years
income ladder 6 (years 26-30). Investment duration available =25 years
income ladder 7 (years 31-35). Investment duration available =30 years. All income ladders are @ 7%.
4. Since quite a bit of time is available, we invest the amount needed to create all these ladders in equity(@ 10%). We need about 26.2 Lakhs for this. We have about 27.5 Lakhs left. Which is not bad at all.

All the rate of returns mentioned above are post-tax. Someone with 3L annual expenses can hope to get into the nil tax bracket soon enough and with luck might stay there.

All this income ladder business is only on paper. The first income ladder is mandatory to set up. After that, the retiree can simply withdraw from the debt funds or set up income ladders for less than 5 years. There are so many possibilities. It is not practical to consider them all.

This looks pretty decent does it not? Someone with initial expenses of 3 Lakh per year can generate an income that increases at the rate of 6% an year for a good 35 years or even more by dividing the corpus in buckets of differing risk and reward.

What can go wrong?

What if there is some kind of unexpected recurring expense? That will ruin the entire plan.

The health insurance premium is part of the annual expense. Increase in premium with age and risk is not factored in.

If the person can earn an additional income, then great. If not, they are walking on a tightrope.

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Illustration: Generating inflation-protected post-retirement income

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Given a lump sum, how does one generate an income from it? How do we tackle inflation in retirement? Not too long ago, I was under the impression that such questions are asked only by senior citizens. I soon realized the problem is extremely common.

Many children are trying to optimize income from their parents retirement corpus. Many young (and not so young) people are trying to do the same for their aging relatives.

Budding early retirees are constantly thinking about retirement planning strategies.

I realized just how popular this issue was when the detailed writeup on [how to generate inflation-protected income from a lump sum](#) was published.

This was soon followed up with the [Inflation-protected Income Simulator](#)

For the past two years, many people belonging to the above-mentioned groups have used freefincal calculators and have written to me about how to go about it.

I generally do not like to publish the queries I receive, as I don't feel comfortable doing that.

However, when I received an email about how to generate inflation-protected income for an elderly couple, I realized that sharing the strategy advised could lead to more ideas as readers are bound to critique it and propose alternative strategies.

With that aim, and with the permission of the person who posed the question of how to generate inflation-protected retirement income, I would like to share my response to the following problem.

Inputs

Carl lives with his wife Ellie in a small town. Carl recently retired from his job and received a lump sum of Rs. 35 lakhs with no pension. Ellie is a housewife.

Their children are settled and independent.

Carl and Ellie are both diabetic and do not have any medical insurance. We will assume that they both are medically uninsurable.

Their monthly expenses are about Rs. 10,000 per month (advantage of living in a small town!)

Objective

Devise a plan for Carl and Ellie to be financially independent in the evening of their lives.

This is how I went about it. Please feel free to share your views and strategy in the comments section.

Calculate Annual expenses: $10000 \times 13 = 1,30,000$ (13 is used instead of 12 for safety)

Inflation Rate: 8%

Interest rate of instrument in which corpus is invested: 8% (post-tax)

Income up to Rs. 3,00,000 is exempt from tax for senior citizens. Carl and Ellie can manage for 11 years if this limit is never changed. Since it should only increase in the near future, we will assume getting 8% after tax will not be difficult for them.

Using an **annuity calculator**, we estimate that, if the entire 35 Lakhs is used for income generation, Carl and Ellie can receive inflation-protected income for 27 years.

However, they are both diabetic and don't have medical insurance. So allocating some money towards a medical expense and emergency corpus is the first step.

So we will assume that inflation-protected income is needed for 25 years (that is when Carl turns 85) for a start.

This is far from ideal, since Ellie is younger than Carl, but this is a good enough starting point.

So they need 32.50 Lakhs for inflation-protected income for 25 years.

This leaves 2.5L a seed money for the medical/emergency corpus.

- Can we increase this seed money?
- Or alternatively, can we invest less than 32.5L for income generation?
- Can we increase the duration over which the inflation-protected income can be generated?

Thankfully, this is indeed possible if they adopt what is known as the *bucket strategy*.

Carl and Ellie divide the next 25 year period into 5-year capsules.

For the first capsule (1st 5 years in retirement), they ensure inflation-protected income by taking the following actions (using the **income ladder calculator**)

Keep away 1.3 Lakh in a bank account to manage first 12 months expenses (1st year in retirement)

1. Invest 1.3 Lakh in a 1-year FD at 8% to manage next 12 months expenses (2nd year)
2. Invest 1.3 Lakh in a 2-year FD at 8% to manage next 12 months expenses (3rd year)
3. Invest 1.3 Lakh in a 3-year FD at 8% to manage next 12 months expenses (4th year)
4. Invest 1.3 Lakh in a 4-year FD at 8% to manage next 12 months expenses (5th year)

Total amount required: **6.5 Lakhs**

The maturity values of the FDs will correspond to the expenses of the couple increasing annually by 8% (our inflation assumption).

Thus using this **income ladder**, they can generate inflation-protected income for the first five years in retirement (1st capsule).

The second capsule is from years 6-10. The necessary amount to adopt the same income ladder strategy can be derived from an investment made at the start of retirement.

That is in addition to the 6.5 Lakhs to manage the income ladder from years 1-5,

1. A sum of 6.5 L is invested at 8% for 5 years. When it matures it is used to run an income ladder from years 6-

2. A sum of 6.5 L is invested at 8% for 10 years. When it matures it is used to run an income ladder from years 11-15
3. A sum of 6.5 L is invested at 8% for 15 years. When it matures it is used to run an income ladder from years 16-20
4. A sum of 6.5 L is invested at 8% for 20 years. When it matures it is used to run an income ladder from years 21-25

A total of $6.5L \times 5 = 32.5 L$

These calculations were made with the [Inflation-protected Income Simulator](#)

Notice that

- A sum of 6.5L is immediately used up (to run an income ladder from years 1-5).
- Four sums of 6.5 L is invested for durations of 5,10,15 and 20 years.

Why should the return expectation of the investment for durations 10, 15, and 20 years be only 8%?

Why can't it be more, by investing suitably?

Yes of course but before stating thinking about equity, we will need to understand that this 32.5L is precious to the couple and there is a limit to the amount of risk that we can take.

So let us assume:

1. 8%return for 5 years. Suggested banking and PSU based debt mutual fund
2. 8% return for 10 years. Suggested: debt oriented balanced funds
3. 10% return for 15 years. Suggested equity oriented balanced funds
4. 10% return for 20 years. Suggested equity oriented balanced funds

What is the investment required for each duration? This can be easily calculated with the [Inflation-protected Income Simulator](#)

If return expectation was uniformly 8%, a total amount of 32.5 L was needed.

If return expectations vary as above, only 29 L is needed.

This is significant for Carl and Ellie because out of 35 L, a sum of about 6L can be invested in fixed deposits and kept aside as a medical corpus and emergency fund.

If the actual return is higher than our expectations, inflation-protected income can be generated for more than 25 years.

Perfect!

The corpus in this example was adequate even with a conservative estimate of 8% for all the investments.

What if the total corpus is only 25K?

Assuming 3L is kept away as a medical corpus, can an inflation-protected income be generated with just 22 L instead of the 29 L estimated above?

If Carl and Ellie will have to work with 22 L instead of 29 L, they will have to get higher returns if income must

increase by 8% each year.

Unfortunately higher returns either means higher credit risk or higher volatility.

If 22L is the corpus available for investment, for 8% annual increase in income, Carl and Ellie will have to expect

1. 8%return for 5 years.
2. 12% return for 10 years.
3. 14% return for 15 years.
4. 14% return for 20 years.

How realistic is that? Perhaps they can pull it off, but what if they cannot?

The probability of 'cannot' is too high for comfort. So in such a case they will have to either

- lower inflation expectation or
- find ways to generate *constant* income in retirement.

Either way the above strategy need not be abandoned in favour of an annuity.

Thankfully lowering inflation expectation is good enough in most situations.

If the income is assumed to increase **5%** each year (instead of 8%), only **21.6 L** is necessary for the conservative schedule assumed above:

1. 8%return for 5 years.
2. 8% return for 10 years.
3. 10% return for 15 years.
4. 10% return for 20 years.

Other possibilities can be worked out with the [Inflation-protected Income Simulator](#)

This the main point of this post. The above-mentioned strategy can be used even for low corpuses with a suitably lower annual increase in income, without taking on additional risk.

The strategy will work even with zero inflation or a constant income.

Caution: Lowering the percentage increase in annual income will work for senior citizens. As far as they are concerned, this is any day better than locking the entire corpus in an annuity at the start of retirement to receive a constant income.

People who are planning for early retirement must strive to work with as large an inflation as possible.

They simply cannot risk quitting their job with a 'lower' corpus assuming they will reduce the inflation on their expenses with a frugal existence.

What do you think?

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