# Chapter 26

# UNDERSTANDING INCOME FLOORING & IRR


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# 26 UNDERSTANDING INCOME FLOORING & IRR

## Annuity

An annuity is like a super bond because firstly it protects against longevity risk. They continue with that payout for as long as someone lives, people who unfortunately die too soon end up subsidizing payments to those who live longer. It's a very morbid fact but that is what it is. You have that protection if you still live in terms of your very guarantee retirement income, retirees like you who have an income for life. What the annuity guaranteed income provides is that if you use that flow of income that makes it a safe idea. So regardless of what if you lose every other asset such as your house, your portfolio, and whatnot you still have this kind of annuity income for life. It makes it less catastrophic if somebody runs out of financial assets because they have a bigger cushion of income or perpetual income to cover living expenses for life. So look at what an annuity can provide and look at the other form of instruments that how many percent they provide if the annuity is providing higher than other competing products or instruments, so to just be right whether it makes sense to put your money into an annuity or not or lump sum money so that it can provide you income for life.

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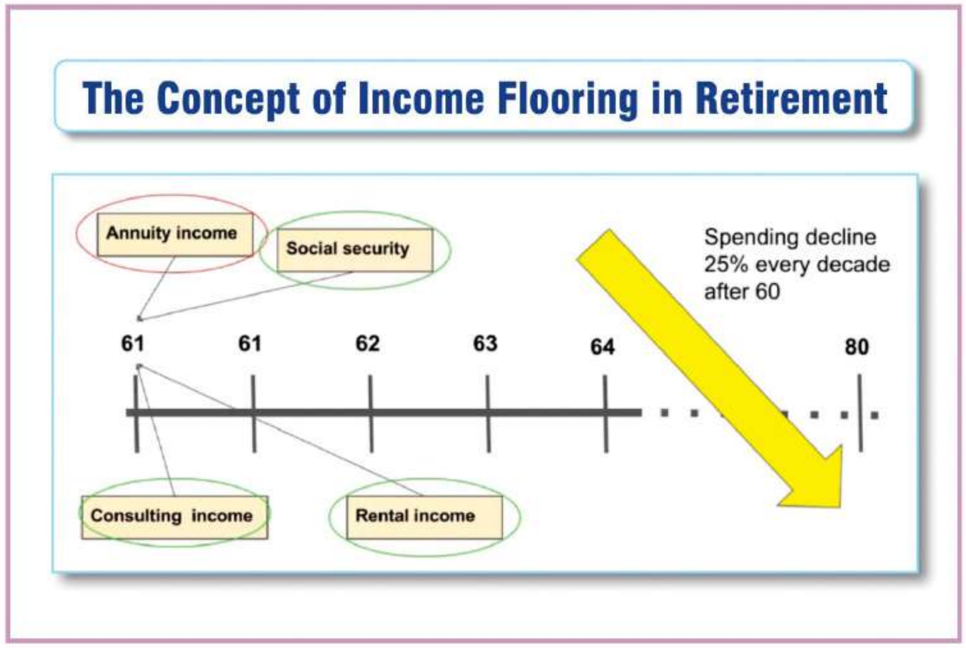
## Income flooring in retirement




Let's give you a real example here, imagine you are 61 years old now and you got your bottom annuity plan that provides you a certain guaranteed income for life. You got your Social Security if you are living in the U.S. or in other countries where you might have some kind of social security provided by the government probably you have some income, part-time job consulting income, got a couple of pieces of real estate property, rent it out generate good rental income fully pay off. So your base spending can be supported by your annuity plan payout. So you can decide to use a very aggressive approach when it comes to withdrawal rate or when it comes to investment. Even though they say they owe after retirement you should be very conservative with your investment. But I say that is not true. If you have your base income cover you can be even more aggressive than when before your retirement. If you have your basic income covered you can be pretty much as aggressive as you were if not more aggressive after retirement with whatever cash that was generated by your consulting income, social security, or rental income. It turns out if, for any reason at all you blow it all away, you run off money in terms of your retirement portfolio maybe 20 years after you retire. You know that you still have this kind of annuity income that at least can sustain your very basic living expenses. So you don't need to be homeless sleeping under the bridge. Now again just ponder over this reality if you are really at age 80, many years from now and from and the idea of running out of money at 80 is no big deal because you enjoy the bulk of your health, your spending, and your lifestyle patterns are going to be dramatically different at age 80. So is it going to be a disaster? It's not a disaster. And the fact that to give a glimpse of hope or light to your retirement in the withdrawal stage is the fact that studies have shown that spending of a retiree declines roughly 25 percent every 10 years or every decade in terms of constant dollars even though the inflation goes up. But the spending pattern decreased so that could more be enough to offset that inflation going forward. A dynamic strategy like this is very sensual with discretionary income flooring. You have this kind of fixed income for life. Again I reiterate an annuity provides you a perpetual fixed income for life whether it's inflation-adjusted or not normally it's not. It could be a complement to have a market portfolio that gives you the upside and the downside. And also something that has that kind of income flow that can sustain your retirement expenses at a very basic level. So you can have this cover and you can have very dynamic or aggressive spending from the rest of your retirement portfolio. If you're at high risk you can still afford at a high-risk person when it comes to investment. If you are a low risk then by all means just keep doing what you were doing before retirement.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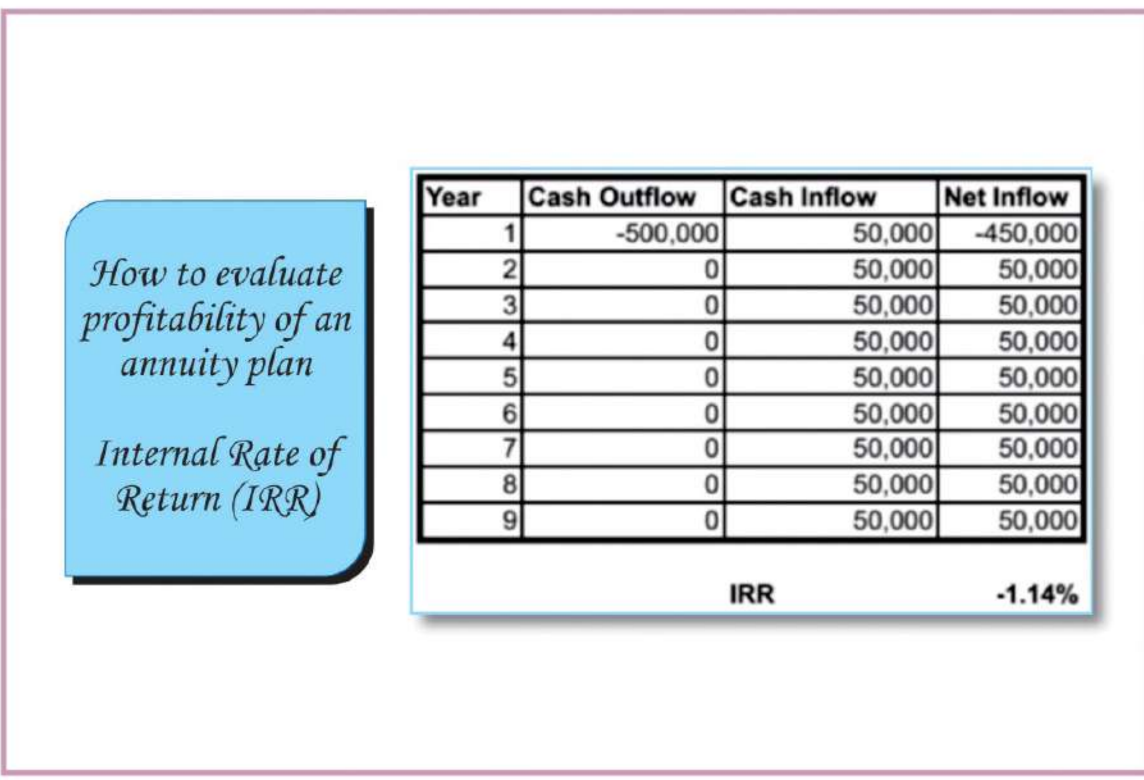
## Internal Rate of Return (IRR)




| Year | Cash Outflow | Cash Inflow | Net Inflow |
|---|---|---|---|
| 1 | -500,000 | 50,000 | -450,000 |
| 2 | 0 | 50,000 | 50,000 |
| 3 | 0 | 50,000 | 50,000 |
| 4 | 0 | 50,000 | 50,000 |
| 5 | 0 | 50,000 | 50,000 |
| 6 | 0 | 50,000 | 50,000 |
| 7 | 0 | 50,000 | 50,000 |
| 8 | 0 | 50,000 | 50,000 |
| 9 | 0 | 50,000 | 50,000 |
| | | IRR | -1.14% |

Now in this chapter, we also want to show you how to compute the annuity plan yield and the yield meaning that annual return computed over a long period. Because annuity plan doesn't give you like over the whole duration how many percent of return you're getting every year because the duration may differ meaning that it depends on a lot of factors like how long you live, how much cash flow, how much initial capital we're putting in to buy the annuity plan. So you have a figure of how long you expect to live looking back at how long your grandparents or your parents live and whether it provides a higher you that competing products such for example we care about cash deposit. In your country, you want to compare against that even makes sense if it's higher than cash deposit rates, interest rate per year. Then maybe it's very worthwhile to buy that kind of annuity plan and to use this, use a metric because the internal rate of return, to calculate the cash flow the cash inflow and outflow and after that, we convert it into a metric called IRR to compare it with an annual return of cash deposits in your country.

Now to start you have an annuity plan that gives you the gift of 50000 every year immediately perpetually and the price to the one-time payment for this annuity plan is half a million. So you have half a million of outflows and you have 50000 of inflows spread over the next 20 years. If you assume that you would live for the next 20 years, how profitable is this plan compared to your normal fixed deposit rate and you can know that just by looking at the schedule which you can do the very same using an Excel sheet or your Google sheet you can use a formula in excel =IRR and look at the whole column of net inflow and open bracket and you just select the whole range for -450000 to 50000 all over until the 20$^{th}$ year and you would have a figure that gets computed for you. In this example, it is 4.06 percent. Now you have to compare it with how much percent of annual return you'll be getting if you put the same money in fixed deposits or cash deposits in your country. If a cash deposit in your country only provides 1 percent and this plan provides 4 percent and you expect to live for the next 20 years. Then this plan is good to go. It's four times more profitable than your cash deposit. By all means, go ahead.

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*How to evaluate profitability of an annuity plan*

*Internal Rate of Return (IRR)*

| Year | Cash Outflow | Cash Inflow | Net Inflow |
|---|---|---|---|
| 1 | -500,000 | 50,000 | -450,000 |
| 2 | 0 | 50,000 | 50,000 |
| 3 | 0 | 50,000 | 50,000 |
| 4 | 0 | 50,000 | 50,000 |
| 5 | 0 | 50,000 | 50,000 |
| 6 | 0 | 50,000 | 50,000 |
| 7 | 0 | 50,000 | 50,000 |
| 8 | 0 | 50,000 | 50,000 |
| 9 | 0 | 50,000 | 50,000 |
| 10 | 0 | 50,000 | 50,000 |
| 11 | 0 | 50,000 | 50,000 |
| 12 | 0 | 50,000 | 50,000 |
| 13 | 0 | 50,000 | 50,000 |
| 14 | 0 | 50,000 | 50,000 |
| 15 | 0 | 50,000 | 50,000 |
| 16 | 0 | 50,000 | 50,000 |
| 17 | 0 | 50,000 | 50,000 |
| 18 | 0 | 50,000 | 50,000 |
| 19 | 0 | 50,000 | 50,000 |
| 20 | 0 | 50,000 | 50,000 |
| | | IRR | 4.06% |

Now what makes this figure different is one of the variables as mentioned is the number of years. If you foresee that you only have nine years left for whatever reason and this plan is still the same plan you have to pay half a million and you'll get 50000 by every year to cover for your income flow for your retirement expenses. You know that you use the same IRR formula you would have only -1.14 percent. It means that you are losing money because in this kind of annuity plan if you die early you are not so with your money to buy one. If you live longer then you earn a lot. So how this annuity plan protects our structure to say that people who died early their portion of income withdrawn will be used to compensate those people who will live longer.


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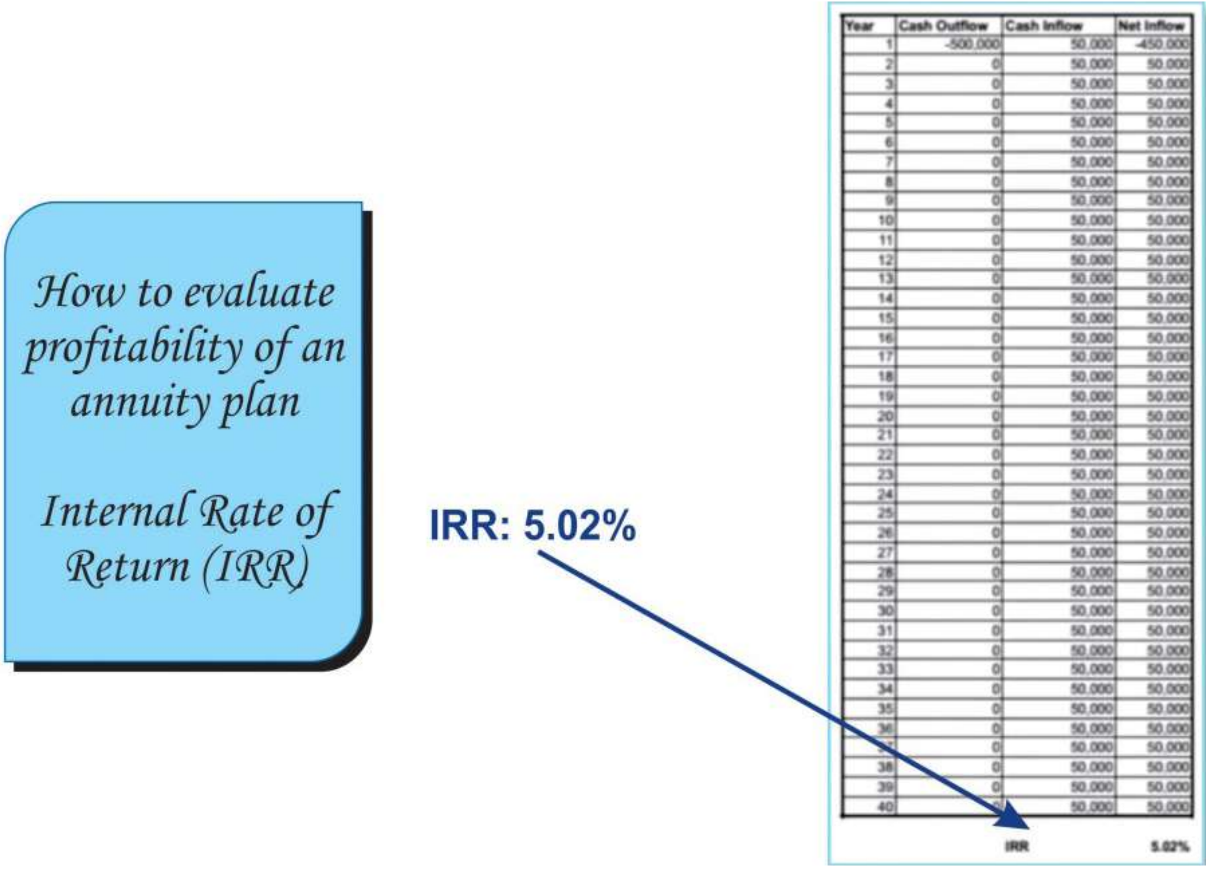


| Year | Cash Outflow | Cash Inflow | Net Inflow |
|---|---|---|---|
| 1 | -500,000 | 50,000 | -450,000 |
| 2 | 0 | 50,000 | 50,000 |
| 3 | 0 | 50,000 | 50,000 |
| 4 | 0 | 50,000 | 50,000 |
| 5 | 0 | 50,000 | 50,000 |
| 6 | 0 | 50,000 | 50,000 |
| 7 | 0 | 50,000 | 50,000 |
| 8 | 0 | 50,000 | 50,000 |
| 9 | 0 | 50,000 | 50,000 |
| 10 | 0 | 50,000 | 50,000 |
| 11 | 0 | 50,000 | 50,000 |
| 12 | 0 | 50,000 | 50,000 |
| 13 | 0 | 50,000 | 50,000 |
| 14 | 0 | 50,000 | 50,000 |
| 15 | 0 | 50,000 | 50,000 |
| 16 | 0 | 50,000 | 50,000 |
| 17 | 0 | 50,000 | 50,000 |
| 18 | 0 | 50,000 | 50,000 |
| 19 | 0 | 50,000 | 50,000 |
| 20 | 0 | 50,000 | 50,000 |
| 21 | 0 | 50,000 | 50,000 |
| 22 | 0 | 50,000 | 50,000 |
| 23 | 0 | 50,000 | 50,000 |
| 24 | 0 | 50,000 | 50,000 |
| 25 | 0 | 50,000 | 50,000 |
| 26 | 0 | 50,000 | 50,000 |
| 27 | 0 | 50,000 | 50,000 |
| 28 | 0 | 50,000 | 50,000 |
| 29 | 0 | 50,000 | 50,000 |
| 30 | 0 | 50,000 | 50,000 |
| 31 | 0 | 50,000 | 50,000 |
| 32 | 0 | 50,000 | 50,000 |
| 33 | 0 | 50,000 | 50,000 |
| 34 | 0 | 50,000 | 50,000 |
| 35 | 0 | 50,000 | 50,000 |
| 36 | 0 | 50,000 | 50,000 |
| 37 | 0 | 50,000 | 50,000 |
| 38 | 0 | 50,000 | 50,000 |
| 39 | 0 | 50,000 | 50,000 |
| 40 | 0 | 50,000 | 50,000 |
| | | IRR | 5.02% |

In the next example after retirement at 60, if you live for the next 40 years. So a plan that provides you 50000 for the next 40 years. But you just invested in this plan half a million dollars at the beginning so your internal rate of return would be slightly more than 5 percent and that is even higher. It could go to 5 percent. If no product can give you a guarantee of 5 percent every year for the next 40 years in the whole market and this plan is a plan that is suitable for you.

## Self-Annuitize

**Self-Annuitize**

**Planning financial assets to last as long as possible**

- *Conservative about your longevity assumptions (plan beyond 100 years old)*
- *Plan safe withdrawal rates = self-annuitizing*
- *You are playing the insurance company*
- *It's an actuarial reality and also it's one of the fundamental challenges*

Now we will understand the benefits of an annuity. So if you choose to self-annuitize and you're

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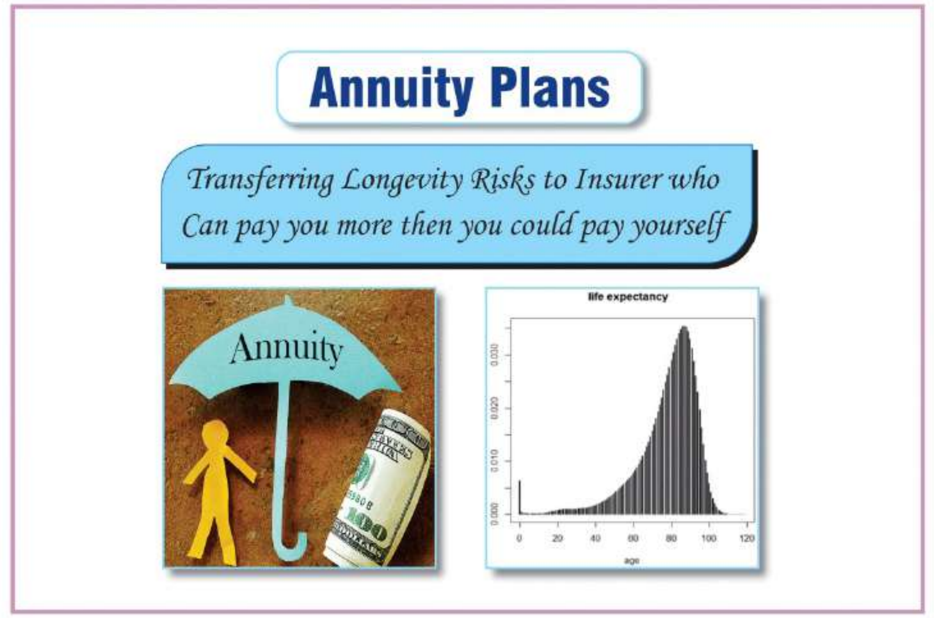
planning to have your financial assets last as long as you live. So as a result you have to be a very conservative assumption of how long you are going to live. Very conservative meaning that even if you think you are going to live for 20 years you probably want to plan for 30 years or 40 years. The 4 percent rule was initially based on the idea of a couple 65 years old retiring for 30 years which in today's world could be longer than 30 years and you could find it reasonable by all means. In today's world, it's very safer to self-annuitize if you want to plan for 30 or 40 years' time horizon. Now I don't think a lot of people understand is that when you plan for safe withdrawal rates in your conventional market correlate the portfolio you're self-annuitizing and you're paying the insurance company or the annuity providers because you are an individual and because you never know exactly how long you're going to live. It's an actuarial reality; insurance companies have professional actuaries to figure out this for them but don't work for you. We are not actuaries and this is one of the fundamental challenges when you self-annuitize and manage your portfolio.




With an annuity, the annuity providers have a large customer base and they don't know how long you're going to live but it's a normal distribution. Look at this chart right. A lot of people are going to die just going up at probably 70 or 80 and it comes down again and it was low before that. This distribution is normal as shown here. When the annuity or insurance company has a large customer base then they can play on averages. They don't know who's going to die next year. The same you don't know whether you're going to die next year or 10 years from now 20 years from now. They also don't know. But if they have the economy of scale, they have a lot of large numbers and they know historically the numbers going to know that 2 percent of their annuity clients are going to die next year. They don't know who is going to live for 30 years but they know that probably 5 percent of all clients are going to live for up to 40 years. So they can figure things out and make a payment based on somebody's life expectancy and from that, they make some changes and going on maybe charge a higher premium or lower the guarantee payment for subsequent enrollment and after deducting all the charges, their business expenses they can make a profit from that. You are leveraging on this information on a large scale when the annuitization method was provided by an annuity or insurance company. So the thing is if you plan for only living for 20 years, you probably have assets run out by then but for the insurance company they are going to pay you more than you could pay yourself because they are going to pool that longevity risk across a large population of individuals.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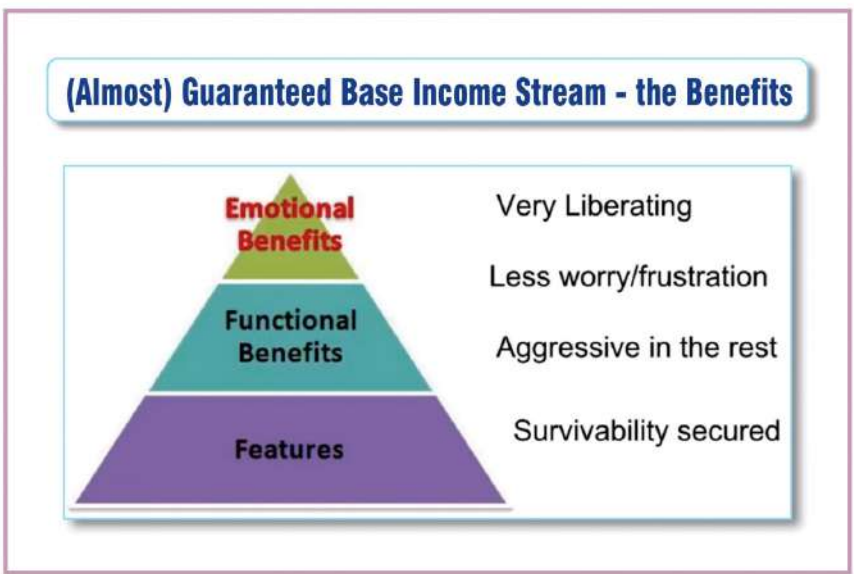
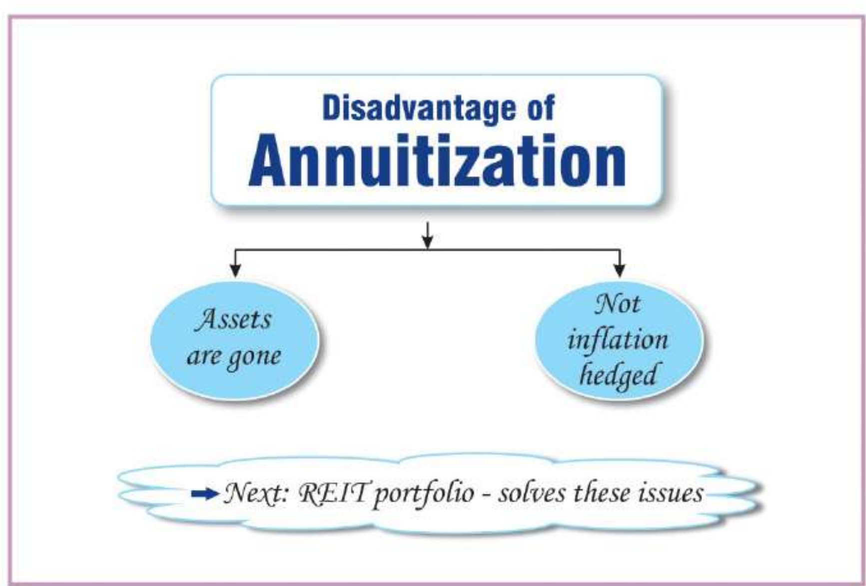
## Guaranteed Base Income Stream




The other benefit is more like the emotional benefits when it comes to the annuitization method. The emotional benefits are very important because it's very liberating to have a guaranteed income stream. If you are very concerned about how to put things together and it comes to investment, constructing a portfolio. If you use the annuity method then the thing is once you use a portion and you put enough half a million and you're going to get 50000 for the rest of the life every year. So you'll be less worried less frustration of how things are going to turn up and you could feel very comfortable because you put in the base of money that could cover your basic expenses, retirement expenses for the rest of your life that you could probably never outlive assuming that the annuity power of the company doesn't go under. At the income level, you allow to manage your remaining asset more aggressively and be comfortable with that and recognizing that if you run out of the money you will still be fine. You have a potential that freedom and relaxing sensation of having those income needs might allow someone to have more, be more secure to feel more secure about the survivability in the post-retirement stage.

## Disadvantage of Annuitization

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The disadvantage of annuitization is that once you put that money in, all assets are gone, you cannot really like there is no U-turn like you are going to take back half a million that put in initially. The income 50000 per year is not inflation hedged. So when they say their assets are gone also because you can't leave it to your beneficiary or your heirs and like if you have a portfolio of assets you can leave it to whoever you love and like but annuity terminates after you die. For this disadvantage of annuitization, you can further complement it with another matter which is the self-annuitization using the portfolio which we are going to cover in the next chapter.


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