Planning for Retirement

Living at Shady Pines Rest Home on
Social Security
An IRA
A 401(k)

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You want to skip this module

- You're 20 years old – you couldn't care less about your retirement
- When you start work after you graduate, you won't be able to save a dime, but if you can, somehow, you're going to want to buy a new car and then maybe a house in a few years
- All your savings will go toward those down payments
- OK – just look at one more slide

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$2.5 million??

- Do you want to retire at 50? 60? 65?
- Can't be bothered thinking about retirement?
- But think about this:
  - **If you can save $400 a month at 10%**

Start at 40	By age 60 $304,000
Start at 20	By age 60 $2,530,000

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Small, medium, large

- To encourage you to spend time on a module that seems unimportant to a college student, we'll go in this order
- Social security
  - Drop in the bucket
- Traditional or Roth IRA
  - Potentially huge
- Employer sponsored 401(k) plan
  - Potentially stupendously colossal

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Social Security

- Social Security Administration was created in the 1930's
- Social Security provides
  - Retirement income
  - Survivors' benefits
    - Widow or widower will continue to collect
  - Health care benefits

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Where the money comes from

- Funding for social security comes from a mandatory payroll tax split evenly between employer and employee
  - FICA (Federal Insurance Contribution Act) taxes are withheld from your pay
    - Taxes put into SS trust fund accounts
    - SS is an "Unfunded pension plan"
      - Taxes from current workers fund current retirees
      - Money withheld from your pay will pay for my retirement
      - Will future taxes be sufficient to pay your future benefits?

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6.2% + 6.2%

- ❑Worker and employer each pay 6.2% of worker's taxable income
  - Up to annual max income of about $85,000
  - No FICA is taken out of income beyond that
- ❑Employee pays an additional 1.45% for Medicare
- ❑Self-employed workers pay the full 12.4%

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Retirement benefits

- ❑Your benefits are based on what you have earned over most of your lifetime
  - ***Basic retirement benefit*** is what you will receive at ***full-benefit retirement age*** (now 65 but will be 67 for you guys)

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Should you wait?

- ❑Don't need to wait til 65 (or 67) to collect
  - Can start as early as 62 but each year early **permanently** costs you 6.67%
  - If you should wait til 67 but you start at 62, your benefits will drop by 5x6.67% = 33.3%
  - Your $800 monthly benefits would become 800-.333(800) = $533 per month
- ❑80% of all retirees take benefits early

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Keep on working if you want

- You can continue to work after *full-benefit retirement age* and still collect social security
  - Any income you make after your *full-benefit retirement age* will **not** affect your social security benefits
    - Now you know why there are so many 75-year old professors teaching at Lehigh!

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But if you collect early and work

- If you take benefits early and continue to work, it'll cost you
  - You'll lose $1 of benefits for every $2 of income over $11,400
  - Assume annual benefits = $12,000 and you work and earn $31,400
    - You lose (31400-11400)/2 = $10,000 in benefits
      - You earn 31,400 + 2,000 = 33,400
      - By working you really only gain 33,400–12,000 = 21,400

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Reaching the target

- Basically estimate your expected retirement income needs and subtract out expected yearly income from other sources such as social security and any company pension plan benefits
- **You're responsible for the remainder**
- **Start now to save toward that remainder**

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Rough example

- Keep everything in today's dollars
- When you graduate, you'll start at $50,000
- But you feel you would want to retire with the equivalent of a *current* $80,000 salary => you need $80,000/yr in today's dollars
- You expect to live 20 years after retiring
- You estimate social security will provide $18,000 per year or $1,500 per month
- You expect a pension benefit of $7,000/yr
- Your share is $55,000/yr = 80,000-18,000-7,000

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$55,000 per year

- Assume you can earn 3% ***in real terms (after inflation)*** on your investments
  - Means that if inflation is 6%, your investments will earn 9% - everything then is still in today's dollars
  - Need PV_{62} = 55,000($PVIF_a$ – 3% - 20) = 818,261 by age 62 to spend until age 82
  - FV_{62} = 818,261 = PMT($FVIF_a$ – 3% - 40)
    - PMT=10,852/yr – that could be rough

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What can I do now?

- For starters open an IRA with a bank or a brokerage firm or a mutual fund and put something away each month (or each year)
  - Consider automatic transfer each month or each paycheck
  - OK to start with a small monthly transfer

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IRA's

- IRA => Individual Retirement Account
  - Currently you are allowed to invest up to $5,000 per year in an IRA
- IRA's come in two flavors:
- "Traditional" IRA
  - Plain vanilla
- Roth IRA
  - Double mocha Heath Bar crunch

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Traditional IRA

- Any money you contribute is tax-deductible - you don't pay tax on the money when it is earned
  - Reduces your current tax bill
  - Obviously this is good
- But you pay taxes on it in the future when you retire and withdraw the funds
  - Obviously this is bad

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Pre-tax contributions

- Investing the usual non-IRA way
  - Make $60,000 and pay taxes of 30% ($18,000)
  - Invest $5,000 of remaining $42,000 and pay taxes on any gains you make
- The traditional IRA way
  - You put $5,000 (pre-tax) in a traditional IRA
  - You pay taxes of 30% on only $55,000 ($16,500)
    - The $5,000 reduces your taxable income
    - Already 18,000 – 16,500 = 1,500 ahead due to lower taxes
    - All invested funds grow tax-free until withdrawal

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Stickin' it to "the man"

- Think of it as you depositing $3,500 and Uncle Sam putting in an additional $1,500
- And it's legal
- Actually the government doesn't want to pay for your retirement through social security so it gives you a big incentive to save for your own retirement

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Roth IRA – the new guy

- Roth IRA is opposite of traditional IRA
- Contributions are NOT tax-deductible
  - You pay tax on the money when it is earned
  - Obviously this is not good
- But when you retire you can withdraw the money tax-free
  - Obviously this is good

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Either way – still good idea

- With either IRA, you pay taxes only once
  - When it is withdrawn with traditional
  - When it is earned at the beginning with Roth
- Either IRA is better than non-IRA investing
  - With non-IRA's you pay taxes twice
    - When it is earned **and** at withdrawal on the investment growth
  - Both IRA's allow funds to grow tax-free
  - $226,000 vs. $62,000 = $164,000 better

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IRA vs. regular investing

- Roth IRA
- Marginal tax rate 35%
- Amount invest $5,000
- Annual return 10.0%
- **After-tax return 10.0%**
- Amount after 40 years
  $226,000

- Regular, non-IRA
- Marginal tax rate 35%
- Amount invest $5,000
- Annual return 10.0%
- **After-tax return 6.5%**
- Amount after 40 years
  $62,000

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Let's look at that another way

- $60,000 income
- Invest $5,000 in IRA
  - Leaves taxable income of $55,000
- Taxes = .35(55,000)
  - 19,250 goes to gov't
  - You keep $35,750 for food, clothing, house, more investing, etc.
- $5,000 grows tax-deferred

- $60,000 income
- Taxes = .35(60,000)
  - $21,000 goes to gov't
  - You keep $39,000
  - Invest $5,000
  - You keep $34,000 for food, clothing, house, more investing, etc.
- Gains on $5,000 investment are taxed

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Traditional or Roth?

- Predicting what your tax rate will be in 40 years is a crapshoot
- No way to predict future tax rates
- Roth has two significant advantages
  - Investing after-tax dollars with Roth is better than investing pre-tax with traditional
    - Actually able to invest more pre-tax dollars with Roth than traditional
  - You can access your money in Roth IRA prior to retirement (under special circumstances)

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Traditional vs. Roth

Assumptions: tax rate=30%, rate of return=8%, max contribution=$4,000
Investing $4,000 in Roth is equivalent to investing $5,714 pre-tax dollars

Traditional IRA

- Initial tax savings $1,200
  - (.30x4,000)
- IRA Balance = $40,251
  - $4,000(1.08)^{30}$
- Non-IRA bal = $6,153*
  - $1,200(1.056)^{30}$
- Total bal = $46,404
- Less: Taxes ($12,075)
- After-Tax Bal = **$34,329**
  - (46,404-12,075)

* .056=.08(1-.30)

Roth IRA

- Initial tax savings $0
  - No tax shield on contribution
- IRA Balance = $40,251
  - $4,000(1.08)^{30}$
- Non-IRA bal = $0
- Total bal = $40,251
- Less: Taxes $0
  - No taxes at withdrawal
- After-Tax Bal = **$40,251**

* 5,714 =4,000/(1-.30)

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What's the catch?

- Major drawback to an IRA is that you can't touch the funds until age 59½ or else you
  - Have to pay tax on the distributions
  - Have to pay a 10% penalty to IRS
- Obviously this puts a damper on opening an IRA
  - What if something comes up?
  - What if you need a bigger down payment to buy house?
- Two major exceptions with a Roth IRA

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The exceptions

- **Roth IRA** allows you to withdraw early *up to amount contributed* free of tax and penalty
  - Invested $8,000 and it's now worth $14,000
    - You can withdraw up to $8,000 without paying taxes or the 10% penalty
- **Roth IRA** allows you to withdraw early *up to $10,000 (regardless of whether it is contributions or growth)* to purchase your first home

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Go with the Roth IRA

- Roth IRA allows you to invest more pre-tax dollars resulting in bigger nest egg at retirement
- Roth IRA allows you to take out $10,000 if you need it for a down payment on your first house

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Can it get any better than an IRA?

- Yes!
- How?
  - Use someone else's money

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Tax-sheltered retirement plans

- Section 401(k) of the Internal Revenue Code gives rise to retirement plans commonly known as 401(k)'s
- 401(k)'s are for employees of private firms
  - Able to contribute up to max of $15,000/yr
  - Most medium and large firms have 401(k)'s
- Not planning to work for a private firm?
  - 403(b) and 457 plans are the same but for non-profit and government employees

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401(k)

- With a 401(k) plan
  - Employee contributions are made from pre-tax income (the same as a traditional IRA)
  - All funds compound and grow *tax-deferred,* thereby building equity much faster (the same as a traditional IRA)
    - Don't pay taxes until the funds are withdrawn (the same as a traditional IRA)

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Didn't we just see all this?

- 401(k) is essentially the same as traditional IRA
  - 401(k) is set up through your employer
  - IRA is set up at your bank or broker, etc.
- **You are allowed to contribute to both an IRA and a 401(k)**
- One more **REALLY** IMPORTANT DIFFERENCE
  - **Many employers will match a certain level of contributions to your 401(k)**
  - **For every dollar you put in, your employer may put in $.25, $.50, $1, $2 or even $3**

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My employer matches me?

- You and your employer both contribute to your plan and **your share is pre-tax**
- Funds held by trustee (away from firm's creditors in event of failure) who invests in
  - Mutual funds
  - Stocks and bonds of employer
- Actual benefits are uncertain due to uncertain investment rate of return
  - Be aware that there is some risk involved

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Amazing example

- Assume 10% rate of return and a 30% tax rate
- You earn $100,000 and your firm will match 50% of your contribution *up to a max of 6% of your salary*
- You contribute $7,000 (can contribute max of $15,000)
- You would have paid .30x7,000 = $2,100 in higher taxes
- You really put in $4,900 and gov't puts in $2,100
- **Your employer kicks in .50x6,000 = $3,000**
- **Your 4,900 is really worth 4,900+2,100+3,000=10,000**
- You have an **instant** return of 5,100/4,900=104%
- At 10%, your single $7,000 deposit will be worth $10{,}000(1.10)^{30}$ = $174,494 in 30 years

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Can you do this every year?

Year	You	Your Uncle Sam	Your Employer	Value
1	4,900	2,100	3,000	10,000
2	4,900	2,100	3,000	21,000
10	4,900	2,100	3,000	159,374
30	4,900	2,100	3,000	1,644,940
40	4,900	2,100	3,000	**4,425,926**

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Cool to see, hard to do

- The trick, of course, is to
  - Come up with the $7,000
  - Do it every year
  - **Not touch it for 40 years**

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But what if you do touch it?

- Again, 401(k) is same as traditional IRA
- Withdraw the funds prior to age 59½
  - Lose growth on the funds
  - Pay taxes at the marginal rate (probably will be quite high since you're still working)
  - Get penalized 10% by the IRS for unsportsmanlike conduct
    - "The man" sticks it to you

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Your lack of discipline costs you

- Take out $10,000 after 10 years to treat yourself
  - Lose growth of $10{,}000(1.10)^{30}$ = $174,500
  - Pay .30 x 10,000 = $3,000 in taxes
  - Pay .10 x 10,000 = $1,000 to IRS as a penalty for early withdrawal
- So you really only get $6,000 to play with, and you lose $174,500 for retirement

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Still the way to go

- Start early and make consistent monthly or annual deposits to a 401(k) plan
- Your employer matches you
- Your contributions are pre-tax so you make a high return instantly
- Deposited funds grow tax-deferred
- But don't touch them until age 59½

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It’s your future

- ❑After you start working
  - Establish a Roth IRA ASAP even if it’s very small ($100 a month)
    - ❑Remember you can withdraw up to $10,000 to finance your first home
  - Start to contribute to your employer’s 401(k) plan with money you won’t need even if it’s very small ($100 a month)
- ❑Psychologically it’ll be easier to up the amounts later as you advance

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