Income Taxes – Different From Other Taxes

- Amount
- Responsibility
    - Filing (reporting & calculation)
    - Prepayment
    - Record-keeping
- Complexity
- Management potential
    - Filing strategies
    - Investment strategies
- Sensitivity to inflation

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Lecture Topics

- **The basics**
- **Tax management**
- **Taxes & Inflation**

Topic 1: Tax Basics

Your First Paycheck

Gross Pay

- Employer deductions
  - Insurances (health, disability, etc.)
  - Savings (401k, HSA, FSA)
- Tax withholding
  - Federal, State & possibly City
  - FICA

Net Pay (Take home pay)

Withholding

- Purpose
  - Makes sure you are paying taxes on wage income on a timely basis
  - Should be sufficient if your only income comes from that employer
  - You may owe additional income tax if you have other sources of income
    - Investment income
    - More than one job that year
    - Self-employed
  - In which case you may need to pay estimated taxes to avoid penalties

- Form W4
  - Used to calculate how much tax should be withheld from your paycheck
  - Filled out when you were hired (*can be updated*)
    - SSN (or TIN)
    - # dependents
    - And if you are subject to (24%) backup withholding
  - Can adjust # dependents if you need to adjust amount of withholding

FICA (*i.e. Federal Income Contributions Act*)

- Consists of Social Security and Medicare Taxes
  - Purely a payroll tax
  - Social Security: 6.2% on first $160,200 of wage income (2023)
  - Medicare: 1.45% on all wage income

- Note: Employers make a matching contribution
  - Which you must also pay if you are self-employed
  - So true ”tax wedge” equals:
    - 15.3% on first $160,200 of wage income
    - 2.9% on any additional wage income

- Issues:
  - What if you work for more than one employer that year?
    - Possible that you paid FICA on more than $160,200 in wages
    - In which case you can reclaim the excess social security taxes when filing your federal tax form.
  - Are both a worker and an employer?

Information Sources & Documentation

Form	From	Information
W2	Employer	Taxable Wages & Withholding
1099-INT	B/B/MF	Interest
1099-DIV	B/B/MF	Dividends (& some CG distributions)
1099-B	B/B/MF	Capital Gains
1099-C	Lender	(Taxable) Debt Forgiveness
1099-K	EBay, etc.	Gross Sales (*if over $600*)
1099-R	Employer or B/B/MF	Retirement Income

Notes:

B/B/MF = Bank, Broker, Mutual Fund (*plus other financial institutions*)

Retirement income = Pension; taxable 401k or IRA distributions

Income etc. from more complicated investments like limited partnerships will be reported via forms K1 and K3

You need to keep track of income, gains or losses from other investments, like real estate or business

Filing & Paying Your Taxes

- Due April 15 (Form 1040, 1040A, 1040SR)
  - Must report all income subject to tax
  - Must pay full tax obligation when filing
  - 5%/month penalty for late filing (*up to 25%)*

- Can get an automatic six month extension
  - Must file for extension by April 15 (*Form 4868*)
  - Must still pay full tax obligation when filing for an extension
    - Subject to potential penalties on any underpayment

- What if you later discover a mistake, learn something new?
  - Can file amended taxes via form 1040X
  - Can go back 3 years in most cases
    (10 years in cases involving living abroad)

Filing & Paying Your Taxes – 2

- Any amount owed when filing is subject to a tax penalty
  - Current interest penalty is 0.5% per month
  - Rate changes each year and is an above-market rate

- To avoid penalties you can make quarterly estimated tax payments (*Form 1040EST*)
  - Payment dates for estimated taxes
    - Q1: April 15; Q2: June 15; Q3: September 15; Q4: January 15
  - Safe Harbors
    - Withheld taxes + timely estimated tax payments > tax owed this year
    - Withheld taxes + timely estimated tax payments > 90% of last year's taxes

- What if you can't pay?
  - File to avoid penalties (*or worse*)
  - Set up payment plan with IRS (see Kobliner)

Form 1040: Basic Set Up

- Reporting all income
  - Common schedules include
    - Schedule B (interest & dividends)
    - Schedule D (capital gains)
    - Schedule E (small business and rental income)
  - Note potential treatment of scholarships & debt forgiveness
- Converting to Adjusted Gross Income
- Converting to taxable income
  - By subtracting standard deduction or itemized deductions (Schedule A)
- Calculating tax owed
- Subtract tax credits/earlier payments to get over- or under-payment
- Calculate penalties, if any

Tax Brackets: 2023

Marginal Rate	Single	Head of Household	Married Filing Jointly
10%	$0	$0	$0
12%	$11,000	$15,700	$22,000
22%	$44,725	$59,850	$89,450
24%	$95,375	$95,350	$190,750
32%	$182,100	$182,100	$364,200
35%	$231,250	$231,250	$462,500
37%	Amt. > $578,125	Amt. > $578,100	Amt. > $693,750

Based on taxable income (i.e. after exemptions, deductions, etc.)

Married Filing Separately brackets look like single bracket except top marginal tax rate starts at $346,876

Standard deduction sizes, phaseouts, etc. also vary with filing status

Form 1040: The Challenge of Complexity

- Number of pages in tax code:
  - Google “IRS.gov Forms, Instructions & Publications”
  - Check out Forms & Instructions for Alternative Minimum Tax (AMT)

- History of tax policy

- Sources of complexity
  - Complex income
  - Complex tax situation (international)
  - Complex notions of fairness/desirability
  - Complex politics
  - Creative accountants & tax lawyers

Ways of Filing Your Taxes

- **By yourself (*in straightforward circumstances*)**

- **Online tax prep software**
  - **Examples: Turbotax.com, HRBlock.com, TaxAct.com**
  - **Relatively inexpensive**
  - **Will seek least expensive way to file**
  - **And can file electronically**

  - **Free IRS alternative if your Adjusted Gross Income (AGI) ≤ $73,000**
    - **Can use irs.gov.freefile**
    - **Will let you select from Turbo tax, H&R bloc, etc. for free**

  - **Free IRS alternative if your AGI > $73,000**
    - **Can use IRS's Freefilefillableforms.com but this program will not minimize your taxes**

- Tax preparer
  - Expensive
  - Didn't start doing this until I
    - Became a partner in a business
    - Moved abroad

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  - **Expensive**
  - **Didn't start doing this until I**
    - **Became a partner in a business**
    - **Moved abroad**

Audits & Recordkeeping Requirements

- The distinction between tax evasion & tax avoidance

- IRS has the right to review
  - Tax filings from last 3 years in all circumstances
  - Tax filings from last 6 years if you under-report income by 25% or more
  - No time limit in cases of fraud (so may need to be able to prove you filed)

- Three types of audits
  - Letter audit
  - Standard audit
  - Audit from hell

- It is your responsibility to maintain the records needed to support your tax filing

Tax-Based Recordkeeping

- Keep at least 3 years of tax returns & supporting evidence including;
  - W2s, 1099s etc.
  - Documented cost basis for any investment sale (including home)
  - Support for all itemized deductions [e.g. charitable contributions (esp. > $250), child care, education, mortgage & student loan interest, property & real estate taxes, unreimbursed job & medical expenses, police reports, etc.]
  - Notes:
    - You may also need to supply back tax returns to document income when applying for a mortgage, etc.
    - If you don’t need to file I recommend keeping pro-forma return showing that you didn’t need to file

- IRA information, especially
  - Account openings, contributions and rollovers
  - Nondeductible contributions to a traditional IRA (Form 8606)
  - Filings associated with early withdrawals (Form 5329)

Tax-Based Recordkeeping - 2

- Cost basis for financial securities (bonds, stocks, etc.)
  - Pre 2011 investments
  - Post 2011 investments
    - Financial institution will do this now
    - But keep track of these costs on your own, especially to support tax lot management (TBD)

- Cost basis for home or other real estate
  - Closing statement (both purchase and sale)
  - Documented cost of home improvements
  - Proof it was your primary residence (for at least 2 of the last 5 years)

- What if you live abroad?
  - Can amend US taxes for up to 10 years
  - And remember the other country may have different recordkeeping requirements.
    - One country I lived in required my keeping 10 years of tax returns and supporting documents.

Topic 2: Tax Management

- See Kobliner for discussion of
  - Basic tax strategies
  - Typical deductions and credits
  - Tax treatment of scholarships

- Filing strategies
  - Usually figured out by tax preparations software
  - My concern
    - Making sure you don't overvalue benefits of tax deductions when looking at potential tax deductible expenses

- Giving Strategies

- Investing strategies

Filing Strategies - Filing Status

- Options
  - Single
  - Head of Household
  - Married Filing Jointly
  - Married Filing Separately

- Differences
  - Standard deductions (2023)
    - Single & Married Filing Separately: $13,850
    - Head of Household: $20,800
    - Married Filing Jointly: $27,700
  - Tax brackets: see earlier tax tables

Filing Strategies - Deductions & Credits

- Itemized deductions vs. standard deduction
  - Key point
    - Itemized deductions may be less valuable than you think.
      - Because your tax rate is low
      - Because high standard deduction and limits to itemized deductions can result in little or no increase in the amount you can deduct
    - So be careful when estimating after-tax cost of deductible expenses.
  - Direction of tax policy since 1987
    - Limits
      - Interest: Student loans & up to $750,000 mortgage on principal home
      - State & local taxes: (SALT): $10,000 (*$5,000 if married filing separately*)
      - Medical: Only amount > 7½% of AGI
      - Charitable gifts: 20%-60% of AGI depending on organization
    - Other considerations
      - Phase outs as income increases
      - AMT

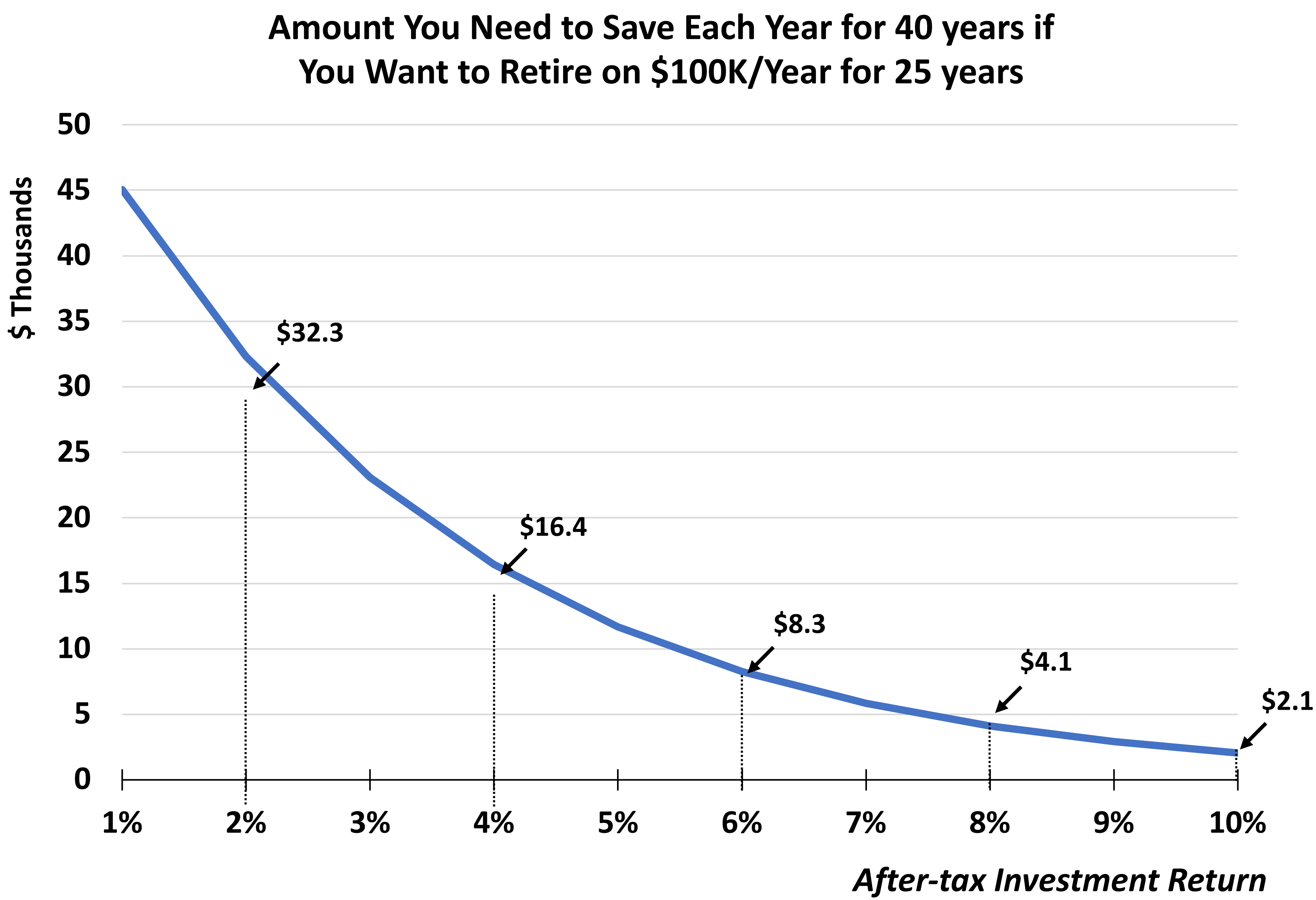
- Tax credits
  - Versus deductions (*$1 credit reduces tax you need to pay by $1*)
  - Earned income credit a reason for low income to file

Giving Strategies

- To each individual
  - Annual exclusion: $17,000 ($34,000 for a married couple)
  - Implications of larger gifts

- To charities
  - Charitable gifts from standard IRAs, etc. (if over 70 ½)
  - Tax treatment when giving appreciated securities (vs. cash)
    - An aside: Cost basis when you give appreciated stock to an individual

Tax Efficient Investing



Tax-Efficient Investing: Issues

- Tax rate on different types of investment income
  - Interest & realized short-term capital gains
  - Ordinary dividends
  - Realized long-term capital gains
  - Unrealized capital gains
  - Other investment income

- Tax-loss harvesting

- Tax-lot management

- Interest costs

Value of $100,000 Investment In 40 Years

- Choices: You can earn 8% interest each year or
  You can buy a non-dividend paying stock whose price rises 8% a year
- Assumptions
  - 20% capital gains tax upon sale (*actual rates are 0%, 15% or 20%*)
  - Only liable for federal income tax, no state income tax

Tax Bracket	Net after-tax interest rate	End Value Of Interest-paying Investment	Stock Value at Year 40	
			Before CG Tax	After CG Tax
0%	8%	$2,172,452	$2,172,452	
20%	6.4%	$1,195,818	$2,172,452	$1,737,962
37%	5.04%	$714,807	$2,172,452	$1,737,962

Tax-Loss Harvesting

- Suppose you have two investments
  - Asset A has a $100,000 unrealized gain
  - Asset B has a $100,000 unrealized loss

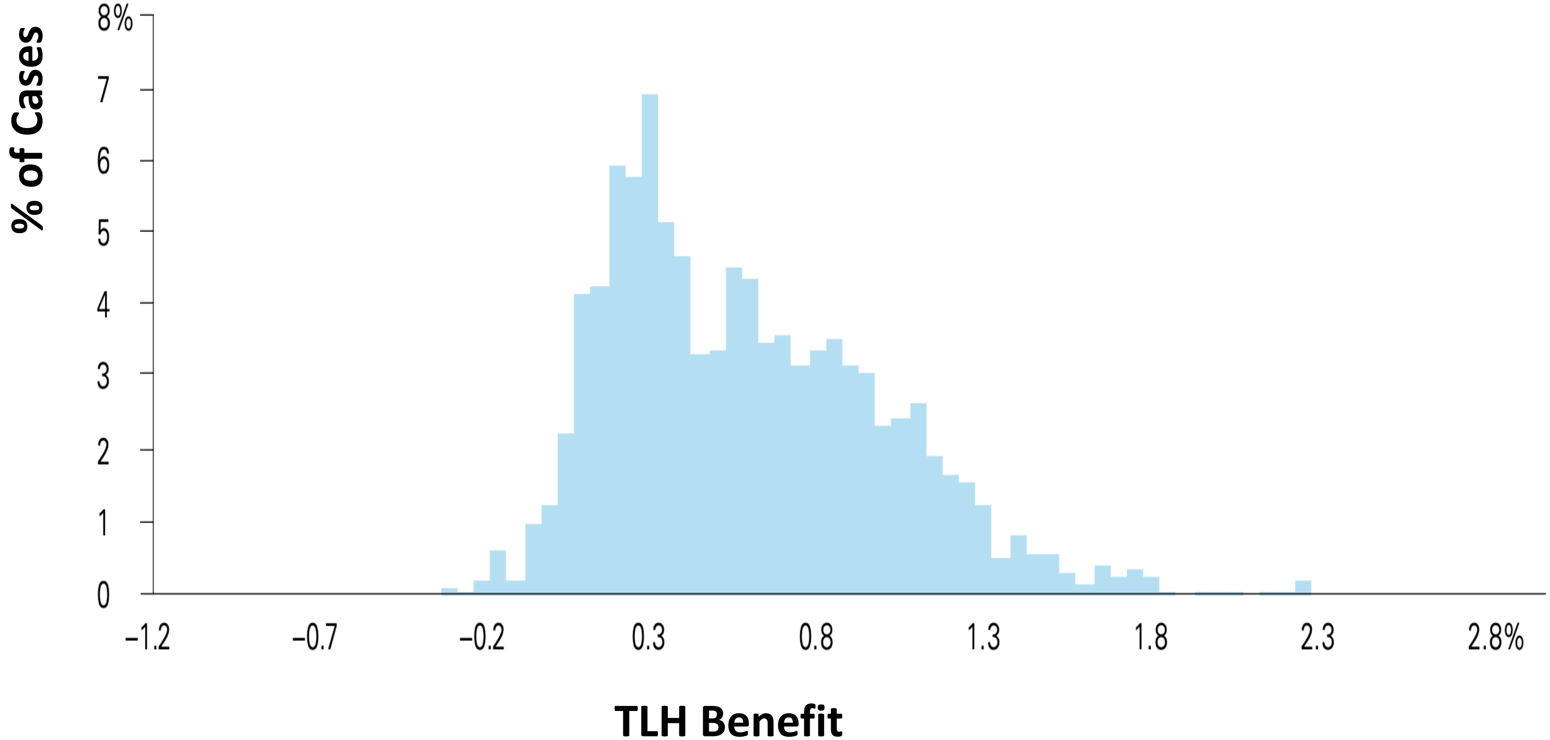
- Implications of selling
  - Only asset A: Taxed on $100K ST or LT gain
  - Only asset B: Report $100K ST or LT loss
    - But can only reduce taxable income by $3K each year
  - Both A and B: no net capital gains

- Wash-sale rules

- Benefits of tax-loss harvesting very dependent on
  - Current and future tax rates
  - Size of investment portfolio outside of IRAs etc.
  - Volatility of individual investments & granularity

Tax-Loss Harvesting - 2

Empirical Distribution of TLH Benefits in 3,360 cases, 2000-2019



Taken from: *Tax-loss harvesting: A portfolio and wealth planning perspective by K. Khang, T. Paradis, & J. Dickson - Vanguard*

Tax-Lots

- Suppose you purchased 100 shares of the same stock at three different times. (all a long time ago)
  - First purchase was for $100/share
  - Second purchase was for $200/share
  - Third purchase was for $300 share

- What is your taxable long term capital gain if you sell 100 shares for $300 share?
  - You do nothing and broker uses
    - Average cost accounting: 100 shares x ($300-$200) = $10,000
    - FIFO accounting: 100 shares x ($300-$100) = $20,000
  - You identity 3 separate tax lots and direct broker to sell the $300/share lot
    - 100 shares x ($300-$300) = $0

Interest Costs On Loans to Buy Investments

- Can deduct interest cost from investment income as long as none of the investments in the account with the loan are tax advantaged (like tax-exempt municipal bonds)

- So keep any municipal bonds in a separate brokerage account

Topic 3: Taxes and Inflation

- About 60 provisions in our tax code are adjusted for inflation
  - Including standard deductions & tax brackets
  - Implication: You are largely protected if your income is wage income

- Taxes on investment income, however, are not inflation neutral
  - And that can affect your saving needs & retirement planning

Issue 1: Inflation & Capital Gains Taxes

- Issue: US tax system taxes nominal capital gains, not real (*inflation adjusted*) gains.
- Suppose
  - You invest $100,000 in a stock
  - And sell it for 40 years later for the same inflation-adjusted price

	0% Inflation	6% Inflation
Buy Price	**$100,000**	**$100,000**
Sell Price	**$100,000**	**$1,028,572***
Taxable Gain	**$0**	**$928,572****

* = *$100,000 • (1.06)*^{40}

** = *90% of unchanged real value of investment*

Issue 2: Taxation of Nominal Interest Income

- Issue: US tax system taxes nominal interest income, not real (*i.e. inflation adjusted*) income.
  - This means the inflation component of your interest income gets taxes
  - And that means the real after-tax interest income depends falls if inflation increases

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- **Background: Interest rates, inflation & the Fisher Equation**
  - **Definition:** $(1+r_{Real}) \equiv (1+r_{Nominal}) / (1+\text{Inflation rate})$
  - **Fisher:** **r_{Real} determined by the real economy, which he assumes is not affected by inflation.**
  - **Implication:** $(1+r_N) = (1+r_R)\bullet(1+\pi)$

$$r_N \approx r_R + \pi$$

Example

- **Suppose**
  - **The real interest rate is 0%**
  - **And you are in the 32% tax bracket.**

- **If there is no inflation**
  - **The nominal interest rate = 0%**
  - **The after-tax nominal interest rate = 0%** [(1-0.32)•0%]
  - **And the real after-tax interest rate = 0%**

Example

- Suppose
  - The real interest rate is 2%
  - And you are in the 32% tax bracket.

- If there is no inflation
  - The nominal interest rate = 0%
  - The after-tax nominal interest rate = 0% [(1-0.32)•0%]
  - And the real after-tax interest rate = 0%

- If the inflation rate = 6%
  - The nominal interest rate = 6% [(1.00)•(1.06)]
  - The after-tax nominal interest rate = 4.08% [(1-0.32)•6%]
  - And the real after-tax interest rate = -1.81% [(1.041/1.06)-1]

Example (*Continued*)

Real Value of $100,000 Investment Forty Years From Now*
(Based on Today's Dollars)

Tax Rate	Inflation Rate	Interest Rate (After tax)		Value (40 Years from Now)	
		Nominal	Real	Nominal	Real
0%	0%	0%	0%	$100,000	$100,000
0%	6%	6%	0%	$1,028,572	$100,000

Example (*Continued*)

Real Value of $100,000 Investment Forty Years From Now*
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0%	0%	0%	0%	$100,000	$100,000
0%	6%	6%	0%	$1,028,572	$100,000
32%	**0%**	**0%**	**0%**	**$100,000**	**$100,000**
32%	**6%**	**4.08%**	**-1.81%**	**$495,098**	**$48,135**

In this case taxing inflation portion of nominal returns results in a 52% reduction in real wealth 40 years from now

Example (*Continued*)

Real Value of $100,000 Investment Forty Years From Now*
(Based on Today's Dollars)

Tax Rate	Inflation Rate	Interest Rate (After tax)		Value (40 Years from Now)		
		Nominal	Real	Nominal	Real	
0%	0%	0%	0%	$100,000	$100,000	Roth IRA
0%	6%	6%	0%	$1,028,572	$100,000	
32%	0%	0%	0%	$100,000	$100,000	No IRA
32%	6%	4.08%	-1.81%	$495,098	$48,135	

What About Inflation-Protected Bonds?

Issue: Impact of unexpected inflation on bond values

The US government offers two inflation-protected bonds

- TIPS (*Treasury Inflation Protected Securities*)
- I Bonds (*Savings bond with inflation-adjusted interest rates*)

Differences:

- How they work
- How they are taxed (*usually not inflation neutral*)

How TIPS Work

Suppose you:

- Buy a newly issued TIPS at par (P=100) with a real interest rate of 2%
- And we experience an 6% increase in price level
    - Principal next year increases from 100 to (1.06)•100 = 106
    - Interest payment next year is (0.02)•106 = 2.12

- Result: Real value of interest coupon each year and final payout is unaffected by inflation (*except for a modest effect from a lag in CPI calculations*).

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- Result: Real value of interest coupon each year and final payout is unaffected by inflation (*except for a modest effect from a lag in CPI calculations*).

Taxation:

- Exempt from state and local taxes.
- But each year you must pay federal taxes on both the interest coupon received and the increase in principal value resulting from inflation.

- Result: Higher inflation results in higher taxes (and a decline in real after-tax returns)

How I Bonds Work

- Essentially a savings bond where interest rate is adjusted each year for inflation. (*US Government announces that rate each year*)

- Works like a zero coupon bond.
  - No interest is paid to you each year.
  - But bond value increases each year by stated interest rate
  - You get paid when you eventually "cash in" the bond
    - Note: You must hold an I Bond for 5 years to avoid penalties.

- Taxation: Can either use "accrual" or "cash" method
  - No state or local taxes
  - But must pay federal taxes – which can be based either on "accrual" or "cash" method
    - Accrual method adds the each year's I-bond interest to your taxable income
    - Cash method only recognizes accumulated interest income when you cash in the bond

How I Bonds Work - 2

- Taxation (*Continued*)
  - Still face higher taxes if inflation increases
  - But cash method has important potential advantages
    - Although taxes are paid at the end, bond value prior to that is compounding the pre-tax rate (just like an IRA)
    - And no taxes are paid if you cash in the bond to meet qualified education expenses.
    - Qualifications include:
      - Don't purchase bond until age 24
      - Can use for child's education if bond is in your name
      - Must file "married filing jointly" if married
      - Income must be below certain thresholds
      - Scholarships, etc. will result in part of I-bond interest being taxed

- So why don't the wealthy/high income focus on I bonds?
  - Can only buy $10,000 per person per year.
  - Won't qualify for education tax benefit.

Digression on Loan Payments

- Suppose
  - Real interest rate is 3%

- If real interest rate is unchanged
  - Nominal interest rate = 3% if inflation = 0
  - Nominal interest rate = 9.18% if inflation = 6%. [(*1.03*)•(*1.06*)]

- Those higher interest payments, however, are potentially deductible.
  - Interest on student loans is potentially deductible
  - Mortgage interest deduction is limited to interest on first $750,000 of mortgage loan.
  - Interest on other loans, like credit cards, is usually not deductible.

Issue 3: Inflation and Interest Deductions

- Suppose
  - You buy a home for $300,000 with no money down
  - You pay a real interest rate of 3% on your $300,000 30-year mortgage
  - Nominal interest rate =
    - 3% if no inflation
    - 9.18% if 6% inflation [*1.03•1.06*]

π	r_N	Monthly Payment
0%	**3%**	**$1,264.81**
6%	**9.18%**	**$2,452.82**

Result:
- Monthly payment almost doubles.
- Ability to buy home is adversely affected if you had been constrained by debt capacity (PITI & DTI ratios).
- But what if you are not constrained?

Results After 1 Month

π	r_N	Monthly Payment	Principal	Interest
0%	3%	$1,264.81	$514.81	$750
6%	9.18%	$2,452.82	$157.82	$2,295

Results After 1 Month

π	r_N	Monthly Payment	Principal	Interest
0%	3%	\$1,264.81	\$514.81	\$750
6%	9.18%	\$2,452.82	\$157.82	\$2,295

π	r_N	Monthly Payment	Change in Home Value	Change in Home Equity
0%	3%	\$1,264.81	\$0	\$515
6%	9.18%	\$2,452.82	\$1,500	\$1,658

Difference in Loan Payment: \$1,188
Difference in Home Equity: \$1,143
Plus no taxes on 1st \$500,000 in realized gains on Home Sale

Potential Tax Consequences

Results After One Year (12 Payments)

π	r_N	Total Payments	Change in Net Assets (Nominal)	Potential Interest Deduction	Standard Deduction*
0%	3%	$15,177.75	$6,263.40	$8,914	$27,700
6%	9.18%	$29,433.88	$19,976 (18,000 + 1,976)	$27,458	$27,700

* *Married, filing jointly ($13,850 if filing singly)*

Notes: Tax benefit depends on tax rate.
Interest only deductible on first $750,000 of your mortgage