Chapter 23
Taxes on Risk Taking and Wealth

Introduction
The taxation of wealth is a politically charged topic. Although some who are rich are in favor of the estate tax — taxation of large estates upon death, others are not.

“Helping billionaires out not to be our business.” — Tom Daschle, former Senator.

“The rich have paid every damn tax that was ever devised. Why should they get taxed just because they pass away?” Grover Norquist, president of Americans for Tax Reform.

In tax reform in 2001 substantially increased the thresholds at which estates are subject to tax, and the estate tax is scheduled to disappear in 2010 (but reappear in 2011).

This lesson explores the effects of taxation on aspects related to savings: the effects on risk taking and the effects on wealth.

TAXATION AND RISK TAKING
Basic financial investment model

Domar and Musgrave (1944) develop a simple model of financial investment risk.

A safe asset that yields no real return (e.g., it rises at the rate of inflation with certainty).

A risky asset that yields an expected return with some uncertainty.

The expected return is the return to a successful investment times the odds of success, plus the return to an unsuccessful investment times the odds of failure.

<table>
<thead>
<tr>
<th>Table 1: Taxation and Risk-Taking</th>
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<tbody>
<tr>
<td><strong>Investment</strong></td>
</tr>
<tr>
<td>$100</td>
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<td>$200</td>
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</table>

Row 1 shows the case where there is no taxation.
Row 2 shows the case where there is taxation, with full loss offset. The mean and variance are reduced.
Row 3 replicates the initial investment in Row 1 with a proportional tax.

Taxation and risk taking

Basic financial investment model

Domar and Musgrave pointed out that taxing the returns from the risky asset would increase risk taking because any tax on the returns could be undone by taking more risk.

This assumes gains are taxed, but losses are deductible.

The first three rows of Table 1 illustrate this situation for an investor named Sam.
Taxation and risk taking

Basic financial investment model

- **Tax loss offset** is the extent to which taxpayers can deduct net losses in investments from their taxable income.
- With full tax loss offset, the expected return is the same in row 2, but the variance is smaller.
- Sam can simply invest more money in the risky asset to replicate the risk/reward structure he desired initially. This is done in row 3.
- The implication for tax policy is important: by raising taxes on capital income, the government can raise revenues without reducing the individual’s well being. The government is essentially a “silent partner.”

Table 1: Taxation and Risk-Taking

<table>
<thead>
<tr>
<th>Investment</th>
<th>Payoff if Win</th>
<th>Payoff if Lose</th>
<th>Tax Rate if Win</th>
<th>Tax Deduction if Lose</th>
<th>After-Tax Winnings</th>
<th>After-Tax Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100</td>
<td>$20</td>
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<td>50%</td>
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<td>$200</td>
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<tr>
<td>$200</td>
<td>$40</td>
<td>-$40</td>
<td>50%–75%</td>
<td>50%</td>
<td>$15</td>
<td>-$20</td>
</tr>
</tbody>
</table>

Row 4 shows less-than-full tax loss offset. In this case, there is no tax deduction for a loss. The expected return changes.

Taxation and risk taking

Real-world complications

- There are two real-world complications to the simple Domar-Musgrave model.
  - Less-than-full tax loss offset
  - Redistributive taxation

Taxation and risk taking

Real-world complications

- First, in the United States, individuals are only allowed to deduct $3,000 of investment losses in any tax year from other taxable income.
- These are losses above-and-beyond investment gains.
- The losses can be “carried-forward” to future tax years.
- Returning to Table 1, the fourth column shows this asymmetric treatment of gains and losses.

Taxation and risk taking

Real-world complications

- Sam cannot simply undo the government tax policy by taking on more risk – rather the expected return has fallen.
- It is impossible to predict for sure what effect limits on loss offsets will have on risk-taking. This feature does limit the applicability of the model, however.

Taxation and risk taking

Real-world complications

- Second, in reality, tax systems are typically progressive, imposing higher marginal tax rates as income rises.
- Winning a large gamble can impose a higher rate, while losing a large gamble can impose a lower rate.
- Consider the last row of Table 1.
Table 1: Taxation and Risk-Taking

<table>
<thead>
<tr>
<th>Investment</th>
<th>Payoff if Win</th>
<th>Payoff if Lose</th>
<th>Tax Rate if Win</th>
<th>Tax Deduction if Lose</th>
<th>After-Tax Winnings</th>
<th>After-Tax Loss</th>
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</thead>
<tbody>
<tr>
<td>$100</td>
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<tr>
<td>$100</td>
<td>$20</td>
<td>-$20</td>
<td>50%</td>
<td>50%</td>
<td>$10</td>
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<tr>
<td>$200</td>
<td>$40</td>
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<td>50%</td>
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<td>$10</td>
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<tr>
<td>$200</td>
<td>$40</td>
<td>-$40</td>
<td>50–75%</td>
<td>0</td>
<td>$20</td>
<td>-$40</td>
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<tr>
<td>$200</td>
<td>$40</td>
<td>-$40</td>
<td>50–75%</td>
<td>50%</td>
<td>$15</td>
<td>-$20</td>
</tr>
</tbody>
</table>

Row 5 shows a progressive tax system on gains. Again, the expected return falls.

Taxation and risk taking
Labor investment applications

- The empirical evidence on taxation of capital and risk taking is sparse.
- The same sort of framework could be applied to another investment decision, however – investing in human capital through education or job training.
- Higher education is only partially deductible from taxation.
- Primary and secondary education expenses are not deductible.
- The tax system is progressive.

- For example, it is estimated that earnings rise by 7% for each year of education completed, but it is an uncertain return – higher for some and lower for others.

- The tax system is progressive.

- How do income taxes affect the decision to accumulate human capital?
- Using the Domar and Musgrave framework, the net return to the investment in human capital is:
  \[ r = W - E - OC \]
  Where: \( W \) = wages, \( E \) = direct education costs, and \( OC \) = opportunity cost of time in school.

- With a flat, single-rate income tax and fully deductible financial costs for education costs, higher taxation would simply increase the investment in human capital, so that individuals preserve the desired amount of net expected investment return.

- Higher education is only partially deductible from taxation.
- Primary and secondary education expenses are not deductible.
- The tax system is progressive.

CAPITAL GAINS TAXATION

- Many assets yield a return not on interest earnings but rather on a capital gain.
- A **capital gain** is the difference between an asset’s purchase price and its sale price.
- This is the primary source of return for many investments, such as owning a home or business.
The tax system treats capital gains different from interest income, depending on the timing of the capital gain.

**Taxation on accrual** are taxes paid each period on the return earned by an asset in that period. Examples include interest income or dividends.

**Taxation on realization** are taxes paid on an asset’s return only when the asset is sold.

To illustrate the tax subsidy from the delay in paying taxes on an asset, notice that $1 invested today leads to a profit of $\pi$:

$$\pi = \left(1 - \tau\right)^T - 1$$

Where $\tau$ is the tax rate, $r$ is the rate of return, $T$ is the periods the investment is held, and **The investment is only taxed when the capital gains are realized at time $T$.**

On the other hand, the $1 invested today leads to a profit of $\pi$:

$$\pi = \left(1 + (1 - \tau)r\right)^T - 1$$

When the investment earnings are taxed each year. The taxation of the investment return means that there is less money to reinvest, and compound, over time.

This subsidy embodied in the capital gains tax is hard to eliminate for many capital goods because:

- It may not be possible to measure accrual for many assets, such as housing.
- Individuals may not have the ability to finance the required tax payment (without selling a large share of the asset).

Capital gains taxation

Current tax treatment of capital gains

- The **basis** is the purchase price of an asset, for purposes of determining capital gains.
- For assets that are passed on to one’s heirs, this basis is “stepped up” to the market value at the time of death.
- For example, if Betty buys a painting for $100, holds it for 55 years, and sells it before she dies for $10,000, she would owe taxes on a gain of $9,900.
- If she leaves the painting to her children, who immediately sell it, they would pay no capital gains tax.
Capital gains taxation: Current tax treatment of capital gains

- The tax code has traditionally featured an exclusion for capital gains on houses.
- For many years, the exclusion allowed individuals to not pay taxes if they put those gains into a new house purchase.
- In addition, there was a one-time exemption for gains of $125,000 for those over age 55.
- From 1997 onward, capital gains of up to $500,000 from the sale of a principal residence are exempt from taxation.

Capital gains income has traditionally borne lower tax rates than other forms of income. This is shown throughout the years:

- From 1978 to 1986, individuals were taxed on only 40% of their capital gains on assets held more than 6 months.
- The Tax Reform Act (TRA) of 1986 ended this subsidy and treated capital gains like other income, with a maximum tax rate of 28%.
- TRA 1993 raised other income taxes, but kept the top tax rate on capital gains at 28%.
- TRA 1997 reduced the top rate on most long-term capital gains to 20%.
- The 2003 Jobs and Growth Act reduced the top rate to 15%.

The differential treatment of different types of capital income is common across countries. Table 2 illustrates this.

<table>
<thead>
<tr>
<th></th>
<th>United States</th>
<th>Canada</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>Japan</th>
<th>Spain</th>
<th>United Kingdom</th>
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</thead>
<tbody>
<tr>
<td><strong>Highest tax rates</strong></td>
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<tr>
<td>on capital income</td>
<td>46.0</td>
<td>46.6</td>
<td>25.0</td>
<td>53.8</td>
<td>27.0</td>
<td>20.0</td>
<td>48.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Interest from bank deposits</td>
<td>46.0</td>
<td>46.6</td>
<td>61.2</td>
<td>53.8</td>
<td>12.5</td>
<td>10.0</td>
<td>48.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Dividends</td>
<td>20.0</td>
<td>46.0</td>
<td>26.0</td>
<td>0</td>
<td>12.5</td>
<td>26.0</td>
<td>20.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Capital gains</td>
<td>20.0</td>
<td>46.0</td>
<td>26.0</td>
<td>0</td>
<td>12.5</td>
<td>26.0</td>
<td>20.0</td>
<td>40.0</td>
</tr>
</tbody>
</table>

Capital gains taxation: What are the arguments for subsidizing capital gains?

- Protection against inflation
- Improved efficiency of capital transactions
- Encouraging entrepreneurial activity

Because of inflation, the current tax policy overstates the extent of capital gains. Taxes are paid on nominal capital gains, not real capital gains. For example, an investment earning a 10% nominal return offers a 0% real return if the inflation rate is also 10%. Yet the person would owe taxes on this 10%, meaning they are actually worse off. This point about inflation is also true for other investments that generate capital income (such as interest earnings), yet tax policy does not favor those sorts of investments.

A second issue has to do with the efficiency of the capital market. The lock-in effect occurs when individuals delay selling their capital assets to minimize the present discounted value of capital gains tax payments. This lock-in means investors may not deploy their assets to their most productive use.
Finally, many entrepreneurs who start their own businesses obtain most of their wealth not from accrued income early on in the life of the business, but from increases in the value of the underlying company. The relevant tax rate is then the capital gains tax rate. A higher capital gains tax rate may therefore deter entrepreneurship.

There are three countervailing arguments to this discouraging of entrepreneurship:

- The theory is ambiguous on whether higher taxes encourage or discourage risk taking.
- Only a small fraction of capital gains go to entrepreneurs.
- Lowering the capital gains tax rate has a large **inframarginal effect** (on established entrepreneurs) relative to the **marginal effect** (on new entrepreneurs).

This last point emphasizes that cutting the capital gains tax rate is a very blunt instrument for encouraging entrepreneurship.

Prospective capital gains tax reductions are capital gains tax cuts that apply to investments made from this day forward. This would have identical effects on new entrepreneurs without nearly the revenue lost because it does not give a tax break to established entrepreneurs. This may be opposed on horizontal equity grounds, however.

What does the empirical evidence suggest about the effects of taxation on capital gains?

- Lowering tax rates leads to:
  - Encouraging entrepreneurship
  - Unlock past gains
- Clearly the first problem can be dealt with by the sort of prospective tax reduction mentioned before. Thus, the main argument for lowering the tax rate on capital gains must be unlock past gains.

If there is a large unlocking effect, lowering the capital gains tax rate encourages people to sell assets now rather than waiting, and such a reduction could actually raise tax revenue. The smaller rate is being applied to a much larger base of capital gains. **Figure 1** shows how capital gains realizations have responded to tax rates.

Realizations spiked upward before the anticipated increase in tax rates in 1987.
Capital gains taxation: What are the arguments for subsidizing capital gains?

- The figure shows a spike in capital gains realizations in response to an anticipated increase in the tax rate.
- Yet, there is little long-term increase in the rate of capital gains realizations when tax rates are lower.
- When capital gains rates are cut, individuals simply speed up the sales of assets they were going to sell anyway.
- Burman an Randolph (1994) find the long-run elasticity of capital gains with respect to the tax rate is -0.18.

Capital gains taxation: What are the arguments against subsidizing capital gains?

- There are arguments against subsidizing capital gains. These include:
  - The capital gains tax is progressive.
  - The subsidy violates the Haig-Simons principle.

TRANSFER TAXATION

- A transfer tax is a tax levied on the transfer of assets from one individual to another.
- Transfer taxes come in two primary forms:
  - Gift taxes
  - Estate taxes
- A gift tax is a tax levied on assets that one individual gives to another in the form of a gift.
  - Gifts in excess of $11,000 must be recorded in your taxes and lower the exemption level from the estate tax.

- The estate tax is a tax levied on the assets of the deceased that are bequeathed to others.
  - The current exemption is $1.5 million. The schedule of exemptions goes up, and then disappears in 2010.
  - Tax rates vary from 18% to 48%.
  - Roughly speaking, the estate tax applies mostly to parents passing large amounts of assets to their children.

TRANSFER TAXATION

- Poterba (2001) shows that the tax treatment of gifts and estates differ, even though the taxes are unified. Under the gift tax:

\[ G_{\text{CHILD}} = \left( \frac{1}{1 + \tau} \right) G_{\text{PARENT}} \]

- Where \( G_{\text{CHILD}} \) is how much the child actually receives, while \( G_{\text{PARENT}} \) is how much the parent actually gives.
- That is, the parent pays the gift tax, not the child.
- For example, if the parent gave the child $10,000 and the gift tax was 50%, the parent owes tax of $5,000.

On the other hand, under the estate tax, the following relationship arises:

\[ G_{\text{CHILD}} = \tau \times G_{\text{PARENT}} \]

- The child pays the estate tax, not the parent.
- For example, if the parent bequeathed the child $15,000 and the gift tax was 50%, the child owes tax of $7,500.
- Clearly the transfers are larger under the first scenario.
TRANSFER TAXATION

Nonetheless, Poterba (2001) finds that wealthy individuals appear to underuse the gift tax relative to the estate tax.

This may be because they want to keep their assets in a way of ensuring that children will behave properly toward them, lest they lose their inheritance.

Table 3 shows that the U.S. is not alone in having transfer taxes.

26 of 30 OECD nations had some form of transfer taxation in 2001.

<table>
<thead>
<tr>
<th>Transfer and wealth taxes (% of government revenues)</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>--------</td>
</tr>
<tr>
<td>Australia</td>
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<tr>
<td>Canada</td>
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<td>Finland</td>
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<td>France</td>
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<td>Norway</td>
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<td>Switzerland</td>
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<td>United Kingdom</td>
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<tr>
<td>United States</td>
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<tr>
<td>OECD average</td>
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</table>

TRANSFER TAXATION

The estate tax has one key advantage: it is a very progressive means of revenue raising.

The estate tax is paid by only the richest 2% of decedents in a year – which amounted to 51,000 estates in 2000.

Yet, $30 billion was raised from this tax.

TRANSFER TAXATION

Most OECD countries have either a “gift tax” or “estate tax.” The U.S. relies slightly more on these taxes.

TRANSFER TAXATION

There are four key criticisms of the estate tax, however.

The “death tax” is cruel.

The estate tax amounts to double taxation.

It creates administrative difficulties.

There are compliance and fairness issues.

TRANSFER TAXATION

Transfer taxation

The death tax is cruel

First, some believe that the “death tax” is cruel.

This is basically a moral judgment.

Some authors question the sincerity of this argument, saying “Much of the griping about taxation at death … is simply a smokescreen designed to hide opposition to a progressive tax.”

TRANSFER TAXATION

The estate tax amounts to double taxation

Second, the estate tax amounts to double taxation.

You are taxed on income when you earn it, either in the labor market or on taxable interest payments, and then your children are taxed on it again when you die.

This could distort savings decisions.
Transfer taxation

The estate tax amounts to double taxation

- Yet, double taxation is pervasive in many areas of the tax system.
- It is also possible that the estate tax does not decrease savings, because there are both income and substitution effects.
- Finally, the capital gains step-up at death works in the opposite direction. Without the estate tax, some capital gains income could avoid taxation altogether.

Transfer taxation

Administrative difficulties

- Third, there are administrative difficulties similar to the ones raised with taxing capital gains on accrual: you may be forced to sell the asset to pay the tax.
- This could be important for family farms or small businesses.
- An effective way to deal with this problem would be to freeze the estate tax at its planned form in 2009: A cap of $3.5 million and top tax rate of 45%.
- The revenue loss would be less than half of what it would be with no estate tax.

Transfer taxation

Compliance and fairness

- Finally, there are arguments made on the grounds of compliance and fairness.
- Financially savvy individuals often set up trusts or offer shares in a new family business to avoid estate taxes.
- As a result, some refer to the estate tax as a “voluntary tax” – only those too unsophisticated to avoid the tax end up paying it.

PROPERTY TAXATION

- A property tax is a tax levied primarily on home owners as a fraction of the value of their homes.
- Localities attempt to match assets values to market values in most cases, but this is difficult when a piece of property has not been sold recently.
- The effective property tax can therefore vary widely.

Property taxation

Who bears the property tax?

- A number of states have limited the ability of localities to raise their property taxes.
- This likely reflects the view that they are costly burdens on average-income home owners.
- Yet there is debate about who actually bears the tax.
- Property taxes may be viewed as a “user fee” in a Tiebout model.
- The taxes are levied on both land and structures, and while the supply of land is inelastic, structures are simply a form of capital investment.

Property taxation

Types of property taxation

- Property taxes need not apply equally to all types of property. There are two key distinctions that can be drawn:
  - Residential homes versus businesses
  - Land versus improvements
Some argue that to encourage economic development, property taxes on businesses should be lower than on residential homes.

Do such tax breaks deliver enough benefits to local communities to justify the loss in tax revenue?

Greenstone and Moretti (2003) find:
- Cities that attracted large industrial plants with tax breaks had higher growth in wages.
- The property values in the cities grew faster.
- Thus, the successful attraction of industrial plants increases welfare of local residents.

Regardless of whether these tax breaks for business help a locality, they are almost certainly a bad deal for the nation as a whole.
- Distort firm location decision from most efficient location.
- Race to bottom, leading to self-defeating tax cuts.

The second distinction is between taxation of land and improvements (structures).

A city councillor in Holyoke, Massachusetts pointed out that the current tax system “punishes those who keep up or improve their property with higher taxes, while those who let their property go are rewarded with tax decreases.”

A problem with taxing land alone is that assessors might “compensate” for a high land tax by undervaluing land itself.

In Pittsburgh, Pennsylvania, when an outside assessor declared that land values were double what they had been assessed at a year before, taxpayers revolted.