

Lecture 11: Taxation principles and theory

FOR 4684 Natural Resource
Economics and Management



School of Forest Resources



Taxation Principles



- Neutrality of resource allocation
 - Taxes should not interfere with the optimal allocation and use of resources and should assist in this goal
- Equity
 - Tax load should be distributed in such a manner that it assists in reaching a desired state of income distribution
 - Regressive vs. progressive taxes
- Efficiency (costs of tax collection)
 - Tax collection costs should be minimized – including the cost of paying the tax by the taxpayer.

Types of taxes

- Property tax
- Productivity tax
- Yield tax
- Severance tax
- Income tax
- Death / Estate / Inheritance Taxes



Property taxes - description

- An *ad valorem* tax – levied by value
- Paid annually
- Mostly used by local governments, school districts
- Applies to two classes of goods:
 - Real property (buildings, land, permanent improvements, timber)
 - Personal property
 - Tangible – autos, farm equipment, personal effects
 - Intangible – claims against tangible wealth such as stocks, bonds, bank deposits, etc.

Administration of property taxes

- Assessment
 - Usually at or below market value
- Review or appeal
- Determination of a tax rate
 - Each local administration and school district can levy individual tax rates
 - All levies total to a single tax rate
- Collection and distribution
 - Tax = Tax rate x Assessment
- Provision for delinquency
 - Reversion to state ownership
 - Sales or auctions to recover taxes



Example of a property tax

- Property taxes are often called “millages”
- A “millage” is a property tax rate
 - A “mill” is 1/10th of a penny
- So, if your property is assessed at \$100,000, and you have the following millages
 - Fire protection 3 mills
 - County roads 5 mills
 - County schools 18 mills
- Your cumulative tax is 26 mills, or you will pay \$0.026 in tax for each dollar of assessed value
 - In this case, your tax is $\$100,000 \times 0.026 = \$2,600$

Problems with property taxes



- Poor administration – usually tied to improper assessment
 - Land classification
 - Valuation of property
- Unfair distribution of tax load
 - Assessed rates vary by local jurisdiction
 - Property ownership not necessarily tied to ability to pay taxes
 - Costs of property tax are high because of difficulty in correctly assessing property
- Property taxes are *ad valorem* taxes – as property increases in value, so does the tax.
- Time bias in property taxes works against forest land management
 - Long period of time required for stumpage production
 - Income from forest land periodic
 - Property taxes an annual cost
 - Local assessors don't understand forestry and long time periods
 - Thus, forestland either:
 - Assessed like agricultural land (at too high a value), or,
 - Tax assessment is at too high a rate (like agricultural land).

Productivity taxes

- Are a fixed amount annually
- Based on capitalization of the net value of mean annual increment
- The productivity tax rate is applied to the present value of amortized future incomes
- So, let's say a timbered property can produce \$3000 per acre every 30 years.
- At 4%, the SEV is \$1337 per acre
- If the productivity tax is 2 mills, then the tax is \$2.67 per acre per year.



Yield taxes

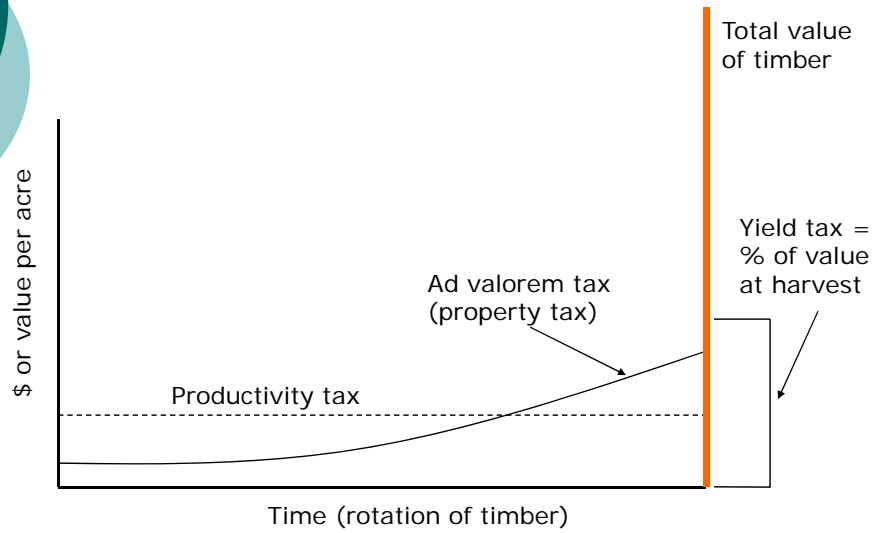
- Tax must be paid only when timber is harvested from land
- Commonly used to replace property taxes for forest land
- Eliminates time bias of property taxes (tax burden comes only when there is actual income from land).
- Requires separation of timber and land
 - Timber is taxed at time of harvest
 - Land may be taxed as property separately
- Yield taxes often optional – landowner may choose to pay yield tax instead of property tax



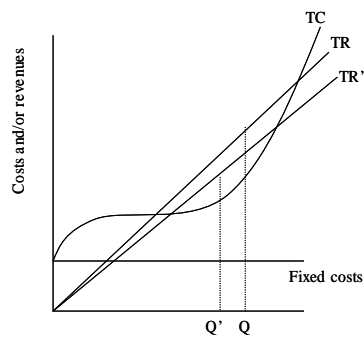
Severance taxes

- Severance taxes typically on non-renewable resources (minerals)
- Not optional or elective
- Severance taxes used in Arkansas on timber (really yield taxes)
 - Pine timber \$0.178 / ton
 - All other timber: \$0.125 / ton
 - Self reported and paid by primary processor (first place of processing)

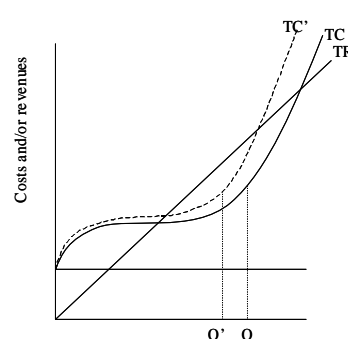
Differences in tax burden over time



Yield tax impacts on timber production



Yield tax acts as a reduction in revenue



Yield tax acts as a variable cost

Income taxes



- Initiated by 16th Amendment to the U.S. Constitution in 1913
- Based on income
 - Income is the realized flow of wealth during a specific period
 - I can work as a consultant and send out a bill for my labor
 - Until the check is received and I have the additional monetary resources, I have not yet received any income.
- Attributes of income tax
 - Levied as income is received (withholding)
 - Income determined on yearly basis
 - Tax is progressive in nature

Federal income tax rates – single individual

If Taxpayer's Income Is...		Then Estimated Taxes Are...			
Between	But Not Over	Base Tax	+ Rate	Of the Amount Over	
\$0	\$6,000	\$0	10%	\$0	
\$6,000	\$26,250	\$600	15%	\$6,000	
\$26,250	\$63,550	\$3,637.50	27%	\$26,250	
\$63,550	\$132,600	\$13,708.50	30%	\$63,550	
\$132,600	\$288,350	\$34,423.50	35%	\$132,600	
\$288,350	-----	\$88,936.00	38.6%	\$288,350	

If Jesse's taxable income is \$110,000, then:
 $13,708.50 + 30\% \times (\$110,000 - 63,550) = \$27,643.50$

Arkansas income tax rates

Taxable income is at least	...but not more than	Tax rate
\$0	\$3,299	1%
\$3,300	\$6,699	2.5%
\$6,700	\$9,999	3.5%
\$10,000	\$16,699	4.5%
\$16,700	\$27,900	6%
> \$27,899		7%

Federal corporate income tax structure



- First \$50,000 15%
- Next \$25,000 25%
- \$75,000 to \$100,000 34%
- \$100,000 to \$335,000 39%
- \$335,000 to \$10,000,000 34%
- \$10 million to \$15 million 35%
- \$15 million to \$18.3 million 38%
- > \$18.3 million 35%



Estimating income tax burden...

A pretty good rule of thumb is federal + state income taxes are about 40%



Value added tax (VAT)

- A tax on the value of goods and services
- A firm buying a good or service pays a VAT on that good, and then collects VAT on any value that is added to that good when they sell it.
- Rarely used in the USA
- Example: Let's say a state has a 5% VAT
 - A furniture factory buys 1 million board feet of cherry lumber from a sawmill for \$2,000,000 + a VAT of \$50,000
 - The logs that produced the 1MMBF cost the mill \$1,000,000, so the mill added \$1,000,000 of value and thus charged \$50,000 in VAT
 - The furniture factory turns this lumber into \$6,000,000 worth of cherry furniture, for a value added of \$4,000,000.
 - They will charge a furniture retailer 5% of the \$4,000,000 in value added, or a VAT of \$200,000.
- Taxes paid by intermediate businesses are credited against taxes collected, only the balance is paid to the government. Thus, VAT is ultimately passed on to the final consumer.

Death / Estate / Inheritance Taxes

- Estate taxes levied against the entire estate
- Inheritance taxes levied against each individual beneficiary of an estate
- There are value limits, below which, estates and inheritances are not taxed
- Estate taxes often detrimental to forest landowners
 - Huge tax burden may require massive harvesting or selling (parcelization) of land to pay tax burden

Current federal estate taxes

Year of Death	Federal Estate Tax Exemption	Highest Rate on "Excess" Property
2002 and 2003	\$1 million	50% in 2002; 49% in 2003
2004 and 2005	\$1.5 million	48% in 2004; 47% in 2005
2006, 2007 and 2008	\$2 million	46% in 2006; 45% in 2007 and 2008
2009	\$3.5 million	45%
2010	Tax Repealed	Tax Repealed
2011	\$1 million	55%

(Arkansas has no estate taxes)



Let's estimate potential estate tax burden...

- 500 acres of pine forest
- Good quality site
- All at age 30, 150 tons per acre
- Value of timber is \$2,000,000
- Land is probably worth another \$300,000
- If owner dies today and this is the ONLY property, then there is \$800,000 of taxable income which could be taxed at a rate as high as 48%
- Estate taxes could be as high as \$384,000



Next laboratory

We will work through the mechanics of taxation including:

- Determining a tax basis
- Calculating taxable income
- Estimating tax liability for a timber sale



Next lecture...

Arkansas and US forest
product economies...