FE431: Public Finance Course Notes

Part IV: Efficient and Equitable Taxation

I. General concepts

"In this world nothing is certain but death and taxes."

- Benjamin Franklin, 1789 personal letter


Benjamin Franklin (1706-1790)

- The primary purpose of taxes is ___________________________.
- A good tax system should be:

1.

2.

3.

A. Types of taxes – How is the tax collected?

Direct taxes – paid directly by person or firm upon which the tax was levied

Indirect taxes – paid through an intermediary

- Note that a "consumption tax" may be either direct (e.g. a personal consumption tax) or indirect (e.g. a national retail sales tax), both of which have been proposed in recent years.

- Keep in mind that all taxes are ultimately borne by some <u>person</u> (i.e. corporations and commodities cannot bear tax burdens).

- Federal tax receipts by source (2007) in billions:

  Total receipts = $2,568.2

  (1) Individual income taxes = $1,163.5 (45.3%)

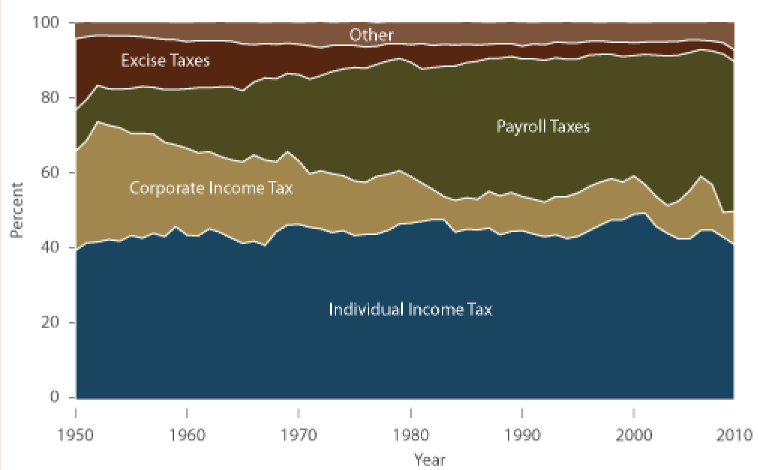
  (2) Corporate income taxes = $370.2 (14.4%)

  (3) Payroll taxes = $867.7 (33.8%)

  (4) Excise taxes = $65.1 (2.5%)

  (5) Estate, gift taxes, customs duties and other → (4%)

Figure 2. Sources of Federal Revenue, Fiscal 1950-2010



Source: Budget of the United States Government, Fiscal Year 2012, Historical Tables: Table 2.1; http://www.whitehouse.gov/omb/budget/Historicals

B. Types of taxes – How does the tax affect behavior / efficiency?

"A tax may either take out or keep out of the pockets of the people a great deal more than it brings into the public treasury."

- Adam Smith, The Wealth of Nations (Book V), 1776

Why? *In Adam Smith's own words:*

→ *"it may require a great number of officers"*

→ *"it may obstruct the industry of the people, and discourage them from applying to certain branches of business"*

→ *"by the forfeitures and other penalties" it incurs on those "who attempt unsuccessfully to evade the tax." "An injudicious tax offers a great temptation to smuggling."*

→ *"by subjecting the people to the frequent visits and the odious examination of the tax-gatherers, it may expose them to much unnecessary trouble, vexation, and oppression."*

- The "inefficiency" from most taxes arises because people alter their behavior in response to taxes (usually in a way that reduces their tax payments).

<u>Distortionary tax</u> → gives people an incentive to change their decisions.

<u>Non-distortionary tax</u> → people <u>cannot</u> alter their tax burden by changing their decisions.

<u>Corrective tax</u> → intended to change people's behavior, but in a way that *improves* efficiency.

****Virtually all practical modern taxes (income / sales / consumption / commodity taxes) are distortionary. They all lower one's real wage, thereby affecting people's work and education incentives. Taxes also affect the return to saving (i.e. the price of current versus future consumption), thereby affecting people's decisions to save and invest.*

C. Types of taxes – How "fair" is the tax?

"The subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities; that is, in proportion to the revenue which they respectively enjoy under the protection of the state."

- Adam Smith, *The Wealth of Nations* (Book V), 1776

- For any tax, the marginal tax rate (MTR) =
- For any tax, the <u>average tax rate</u> (ATR) =
- A tax is:

<u>Progressive</u> →

<u>Proportional / Neutral / Flat</u> →

<u>Regressive</u> →

<u>Example</u> : Keith and Kurtis each pay $20,000 for a tax. Kurtis has $100,000 in income, Keith has $50,000

- Horizontal equity → two individuals with similar ability to pay (in income?) should pay same amount in taxes

- Vertical equity → individuals with higher ability to pay should pay more in taxes (proportionally more? More than proportionally more?)

*** Attempts to achieve a more <u>equitable</u> tax system have often led to a more <u>inefficient</u> tax system, and vice versa.

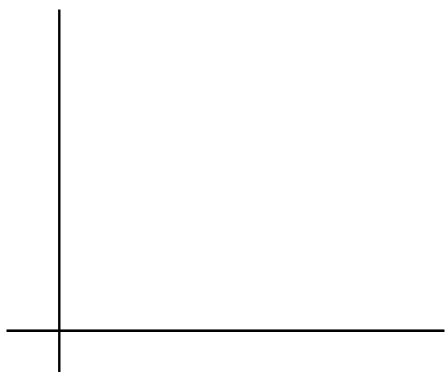
II. Income taxes and other direct taxes

A. Income taxes

- U.S. Federal Personal Income[1] Tax Rates (for 2011)

Taxable income amount/ Marginal tax bracket:

Single:		**Married filing jointly:**	
$0 - $8,350	10%	$0 - $16,700	10%
$8,350 - $33,950	15%	$16,700 - $67,900	15%
$33,950 - $82,250	25%	$67,900 - $137,050	25%
$82,250 - $171,550	28%	$137,050 - $208,85	28%
$171,550 - $372,950	33%	$208,850 - $372,950	33%
$372,950 - above	35%	$372,950 - above	35%



Principle #1: An income tax system with increasing marginal tax rates (MTR) (e.g. the U.S. federal personal income tax) is progressive (i.e. has an increasing average tax rate (ATR)).

- Under 2011 rates, a "single" filer with $100,000 in taxable income would owe ___________ in federal personal income taxes

ATR =

MTR[2] *=*

[1] First federal income tax in U.S. was imposed as an emergency measure after the Civil War (Federal government depended largely on tariff revenue earlier). The income tax was challenged by several states and ruled unconstitutional by the U.S. Supreme Court in 1894. The 16th Amendment (passed in 1913) explicitly allowed a federal income tax.

Historical Top Tax Rate

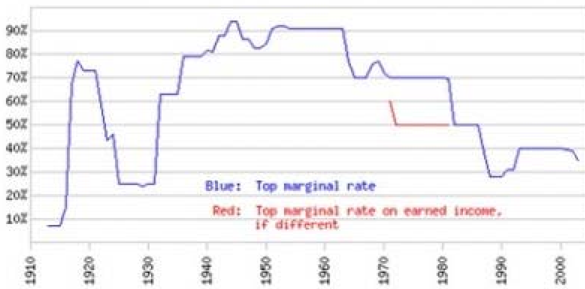
Also available as: PDF | Excel

31-Jan-11

Historical Highest Marginal Income Tax Rates

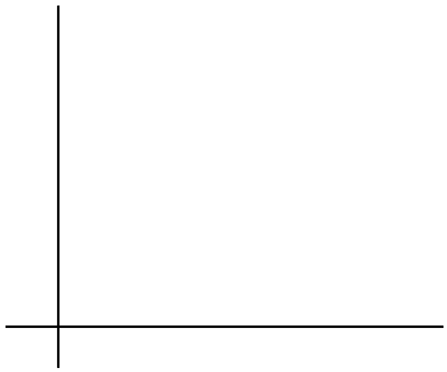
Year	Top Marginal Rate	Year	Top Marginal Rate	Year	Top Marginal Rate
1913	7.0%	1946	86.45%	1979	70.00%
1914	7.0%	1947	86.45%	1980	70.00%
1915	7.0%	1948	82.13%	1981	69.13%
1916	15.0%	1949	82.13%	1982	50.00%
1917	67.0%	1950	91.00%	1983	50.00%
1918	77.0%	1951	91.00%	1984	50.00%
1919	73.0%	1952	92.00%	1985	50.00%
1920	73.0%	1953	92.00%	1986	50.00%
1921	73.0%	1954	91.00%	1987	38.50%
1922	56.0%	1955	91.00%	1988	28.00%
1923	56.0%	1956	91.00%	1989	28.00%
1924	46.0%	1957	91.00%	1990	31.00%
1925	25.0%	1958	91.00%	1991	31.00%
1926	25.0%	1959	91.00%	1992	31.00%
1927	25.0%	1960	91.00%	1993	39.60%
1928	25.0%	1961	91.00%	1994	39.60%
1929	24.0%	1962	91.00%	1995	39.60%
1930	25.0%	1963	91.00%	1996	39.60%
1931	25.0%	1964	77.00%	1997	39.60%
1932	63.0%	1965	70.00%	1998	39.60%
1933	63.0%	1966	70.00%	1999	39.60%
1934	63.0%	1967	70.00%	2000	39.60%
1935	63.0%	1968	75.25%	2001	38.60%
1936	79.0%	1969	77.00%	2002	38.60%
1937	79.0%	1970	71.75%	2003	35.00%
1938	79.0%	1971	70.00%	2004	35.00%
1939	79.0%	1972	70.00%	2005	35.00%
1940	81.10%	1973	70.00%	2006	35.00%
1941	81.00%	1974	70.00%	2007	35.00%
1942	88.00%	1975	70.00%	2008	35.00%
1943	88.00%	1976	70.00%	2009	35.00%
1944	94.00%	1977	70.00%	2010	35.00%
1945	94.00%	1978	70.00%	2011	35.00%

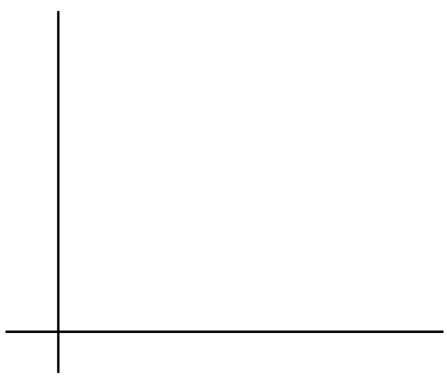
[2] Keep in mind that the MTR applied to dividends and capital gains differs from other rates on chart (currently between 0% and 15%, depending on the taxpayer's regular income (some taxed at 25% and 28% under special circumstances), with most dividend and capital gain income taxed at 15%.



- Calculating “Taxable Income” and “Taxes Owed”:

- Consider a true "flat tax" or a Negative Income Tax (NIT) type flat tax:





- The Corporate Income Tax → virtually a 35% flat tax on taxable corporate income

- Why do we have a separate tax on corporate income? Some arguments:

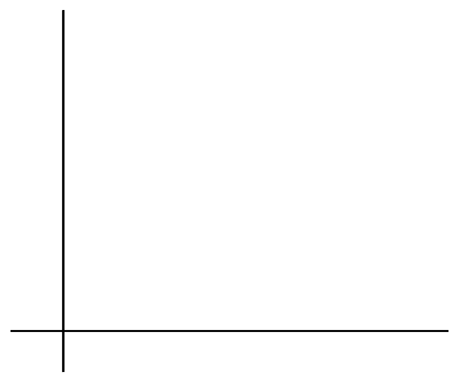
Principle #2: The corporate income tax prevents individuals from avoiding or deferring personal income taxes by leaving income in the corporation. Unless dividend payments are tax-exempt at the personal income level, however, dividend income ends up being taxed twice because of the corporate income tax (and perhaps a third time under any estate taxes).

B. Payroll taxes and other direct taxes

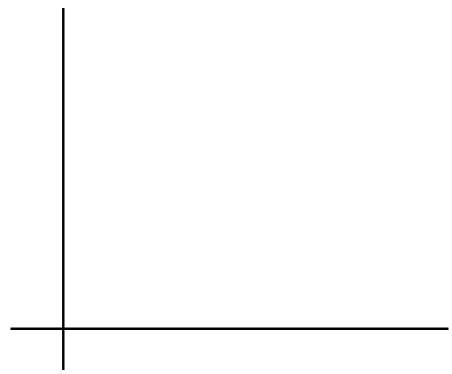
- Payroll taxes (e.g. Social Security, Medicare, and Unemployment Insurance taxes) are largely borne by workers in the form of lower wages, even though employers typically pay an equal part (6.2% for Social Security and 1.45% for Medicare) or all of the tax (Federal UI taxes).

Principle #3: In the U.S., payroll taxes (on labor income) are used to fund Social Security and Medicare. It is estimated that the primary burden of payroll taxes falls on workers (in the form of lower equilibrium wages).

- Both income taxes and payroll taxes lower workers' real wage rates. How does this impact their labor supply decisions?



- Taxes on interest, dividend and capital gains income lowers the return to savings. How does this impact people's consumption / saving decisions?



<u>Principle #4:</u> Taxes on interest, dividends, and capital gains <u>lowers the return to savings</u> (as well as the "price" of current consumption relative to future consumption). This may cause an individual to save more or less (depending on income and substitution effects).

Principle #5: Property taxes tend to get "capitalized" into the market value of property. Therefore, they are borne primarily by the owner of the property at the time the tax is levied or changed.

- Easiest way to see this is by considering the expected sale price of an acre of farmland.

- Price of an acre should be equal to the present discounted value of the future stream of "rents" that can be earned from the acre.
- If taxes of $\$t_0$, $\$t_1$, …, $\$t_\infty$ are imposed, then

- Notice that the price per acre falls by

  which is exactly the present discounted value of the expected future tax payments. If someone purchases the land, the future tax payments are completely offset by the lower market price of the land. This process of the price of land reflecting all future burdens (or benefits) is called capitalization.

- The same general principle holds for urban and residential property, except that in the latter case the rent earned from the property may by "imputed rent" (e.g. the amount the owner-occupier would have been willing to pay someone else to live on the property).

<u>Principle #6:</u> Estate and gift taxes increase the progressivity of the U.S. tax system, and may promote other social goals.

Federal Estate Tax Schedule

Year	**Exemption**[3]	**Tax Rate**
2009	$3,500,000	45%
2010[4]	$0	0%
2011	$5,000,000	35%
2012	$5,000,000	35%
2013	$1,000,000	55%

- Discussion of estate and gift taxes, and "Taxation and Liberty" by Herbert Kiesling
- Why tax "wealth" (independent of income)?

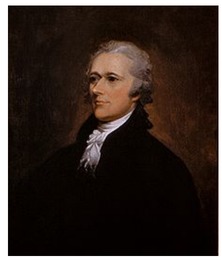
[3] The "gift tax" exemption amount is currently $13,000 per person per year, with the total lifetime exemption amount of $5,000,000 currently.

[4] Heirs actually were given a choice in 2010 to apply the old law (no estate tax), or the new law enacted December 2010 which imposes an estate tax (with exemption of $5,000,000 and rate of 35%), but could also yield large capital-gains tax savings for large estates when those gains are actually realized.

III. Consumption taxes and commodity taxes

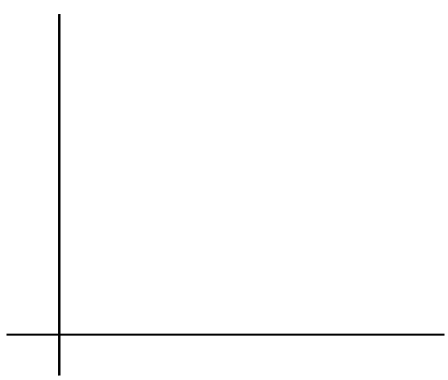
"It is a signal advantage of taxes on articles of consumption that they contain in their own nature a security against excess. They prescribe their own limit, which cannot be exceeded without defeating the end proposed—that is, an extension of the revenue. When applied to this object, the saying is as just as it is witty that, "in political arithmetic, two and two do not always make four." If duties are too high, they lessen the consumption; the collection is eluded; and the product to the treasury is not so great as when they are confined within proper and moderate bounds. This forms a complete barrier against any material oppression of the citizens by taxes of this class, and is itself a natural limitation of the power of imposing them".

- Alexander Hamilton (1755-1804), in the Federalist Papers (1787-1788)



Let's look at individual commodity taxes before discussing more broad-based consumption taxes:

Principle #7: Commodity taxes (as well as other consumption and income taxes) are, in general, less efficient at raising revenue than "lump-sum taxes" (unless they are "corrective taxes", e.g. tax on a polluting good).

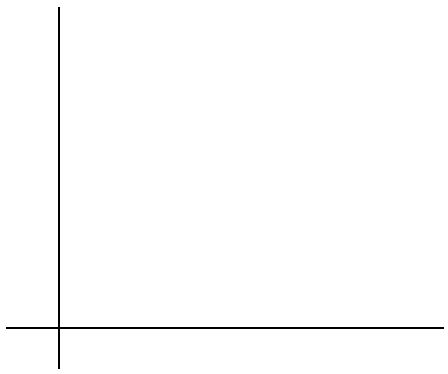


Principle #8: Commodity taxes generally lead to a deadweight loss.

Principle #9: The burden of a commodity tax is generally shared by producers and consumers of a good.

Principle #10: The share of a commodity tax borne by consumers and producers does not depend on who the tax is formally collected from (that is, the economic incidence of a commodity tax is independent of statutory incidence). The same goes for a subsidy.

Principle #11: The share of a commodity tax borne by consumers is higher the more inelastic the demand for the good and the more elastic the supply. And vice versa.



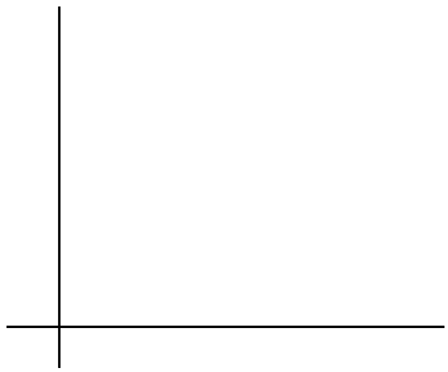
Principle #12: The deadweight loss from a commodity tax is smaller the more inelastic the demand and supply of the good.

Principle #13: The deadweight loss from a commodity tax increases exponentially with the size of the tax.

Principle #14: A direct result of (12) and (13) above is that efficient commodity taxation requires that taxes be spread over many commodities, and individual taxes should be inversely related to the elasticity of demand (i.e. higher taxes on goods with inelastic demand).

⇒ Called the "Ramsey Rule"

Principle #15: A set of commodity taxes that raises all goods prices by the same percentage is equivalent to the same percentage sales tax or a flat income tax of the same percentage (if we ignore income that is saved). However, none of these are able to tax “leisure”. Therefore, all make leisure less expensive relative to other goods.



"Of course, such a new tax would be a two-edged sword: a highly efficient tax, but politically dangerous. To paraphrase Larry Summers from long ago, we don't have VAT in the US because Democrats think it is regressive, and Republicans think it is a money machine. We will get VAT when Democrats realise it is a money machine, and Republicans realise it is regressive. Obviously, I worry about the money machine property, but I see no serious alternative for raising the revenue needed for an overall next-stage reform package."

- Harvard economist Robert Barro (1944 -)

- The current Federal tax system is really a hybrid income-consumption tax (because some income is tax-deferred until consumed → e.g. some retirement savings).
- Three true consumption tax proposals:
  1. National retail sales tax (NRST) (e.g. FairTax.org)

2. Value-added tax (VAT)

3. Cash-flow personal consumption tax

- 2005 President's Advisory Panel on Federal Tax Reform recommended making the current system more like a consumption tax by increasing the amount of tax-deferred savings options (e.g. tax-deferred savings accounts for education, health care, retirement, and housing).

IV. Appendix – Fifteen principles for efficient and equitable taxation

Principle #1: An income tax system with increasing marginal tax rates (MTR) (e.g. the U.S. federal personal income tax) is progressive (i.e. has an increasing average tax rate (ATR)).

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