



Taxation

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Forthcoming: *Handbook of Law and Economics* (2007)

Related: *The Theory of Taxation and Public Economics*
(Princeton University Press 2008)



Introduction

- Scope: Conceptual Framework
 - Focus on major structural features
 - Emphasizing relationships among the pieces
 - contrast existing Public Economics Handbook (4 vols.) and surveys of specific subjects
- Not:
 - Empirical
 - Political economy
 - Macroeconomics (stabilization, ...)



Framework

- Purposes of taxation
 - Redistribution
 - Revenue-raising
 - identical individuals: trivial result that uniform (lump-sum) levy optimal; no distortion
 - distortionary income tax (etc.) *because* distribution matters
 - “equity-efficiency” tradeoff thus central
 - Corrective (Pigouvian)

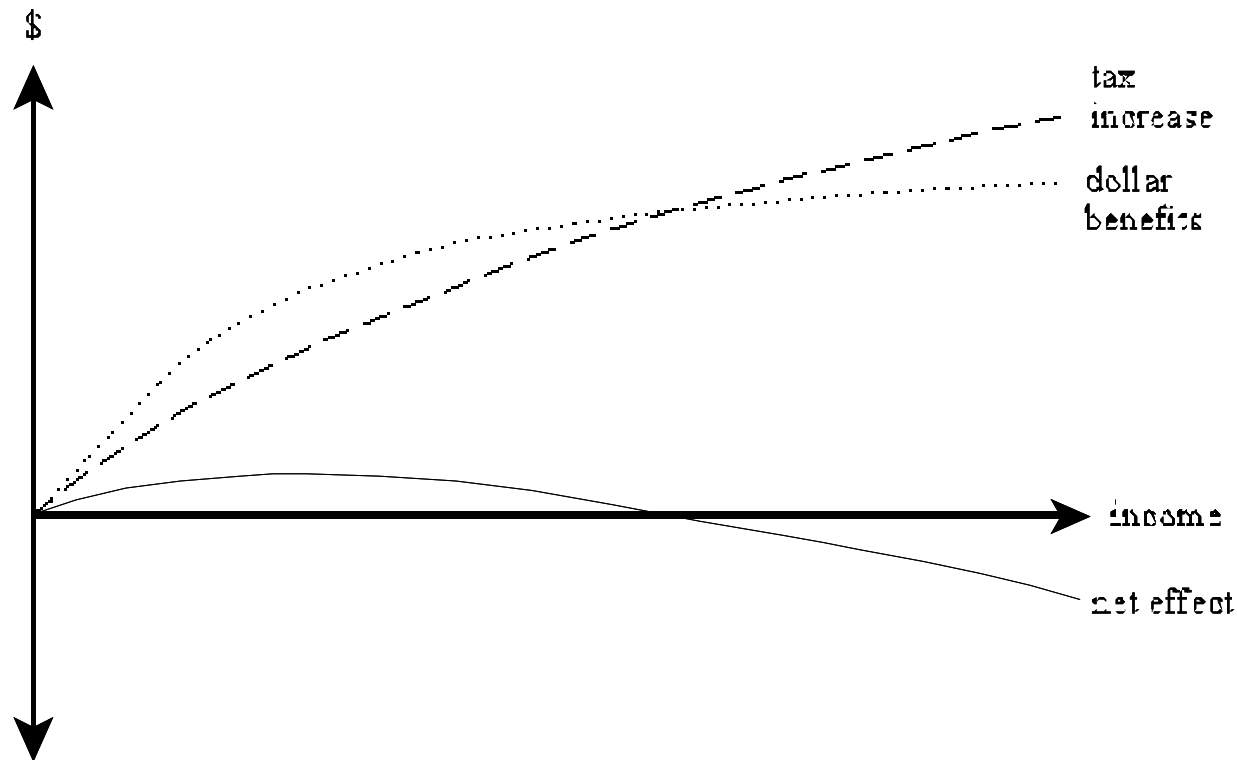


Integrated view

- Optimal use of instrument A depends on whether instrument B available
- Notably, income tax (and transfers) are core instrument for revenue/redistribution
- Other tools (commodity taxes, estate/gift tax, ...) viewed as special-purpose supplements
 - assessed on efficiency grounds – income tax adjustments can hold distribution constant
- Likewise for public goods, regulation, ...

Illustration: viewing pieces in vacuum can be misleading

Figure 2.1
Government Expenditure Financed by Gasoline Tax Increase





Social objective

- Explicit reference to social welfare function
 - surprisingly high use of fuzzy proxies (ability to pay) and often unspecified notions of fairness
 - inappropriate, and often indeterminate in any event
 - value of tracing all to welfare is large (e.g., family unit, estate/gift tax, administration/error)
- “Welfarism”: notion that all of social relevance can be traced to effects on individuals’ welfare
 - some defense in section 13
 - see generally *Fairness versus Welfare* (2002) (w/ Shavell)



SWF

$$(2.1) \ SW(x) = \int W(u_i(x)) f(i) di,$$

- Ex.: Utilitarianism
- Decreasing marginal utility in u
 - Ex: $u = \ln y$
 - $MU = 1/y$
 - Utilitarian SWF: marginal \$ worth 10 times to those with 1/10 the income



Common Formulation

$$(2.2) \quad SW(x) = \int \frac{u_i(x)^{1-e}}{1-e} f(i) di, \quad \text{for } e \neq 1$$

$$= \int \ln u_i(x) f(i) di, \quad \text{for } e = 1,$$

- e : inequality aversion parameter
- Also decreasing MU, in the u function
- Weight on redistribution depends on both
 - *But arguably mainly the latter*

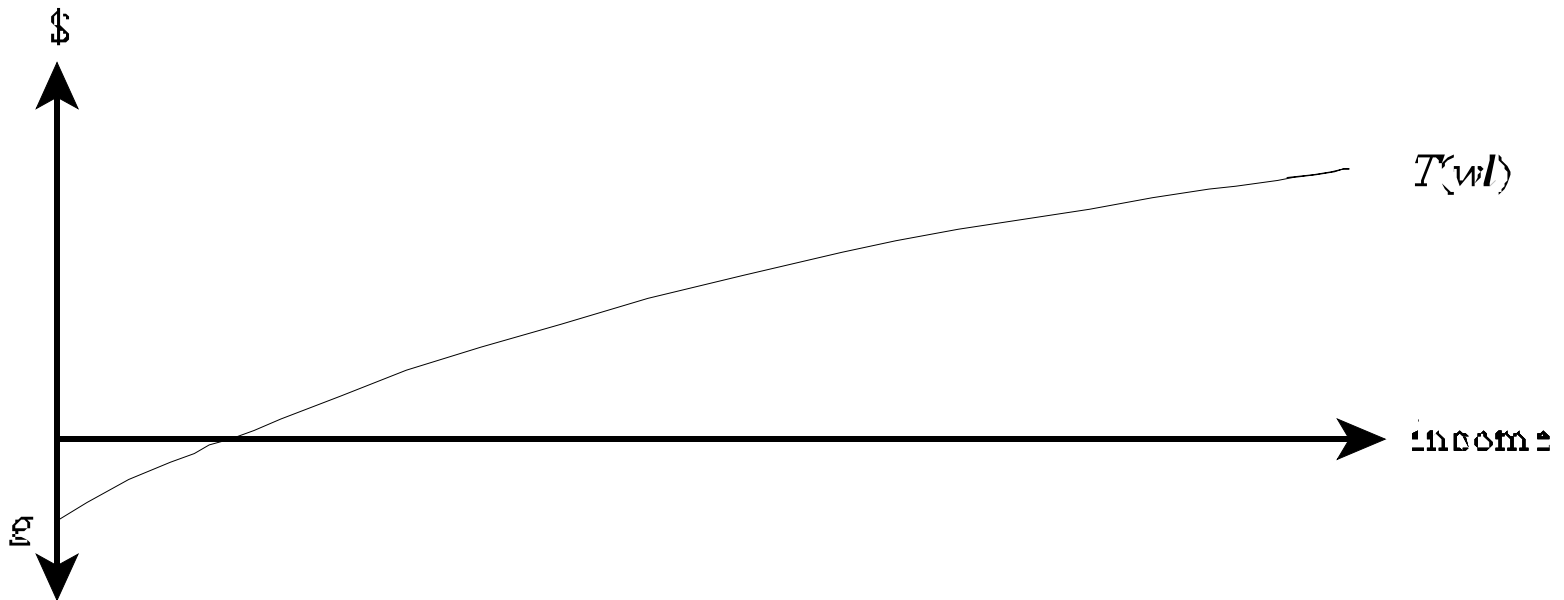


Optimal income taxation

- Problem statement (Mirrlees 1971, Atkinson & Stiglitz 1980)
 - Choose tax system to max SWF, subject to:
 - Individuals choose labor supply to max U
 - Exogenous revenue requirement
 - Note:
 - type (earning ability w), assumed unobservable
 - tax income, a signal of ability
 - hence distortion

Illustration of tax/transfer fn

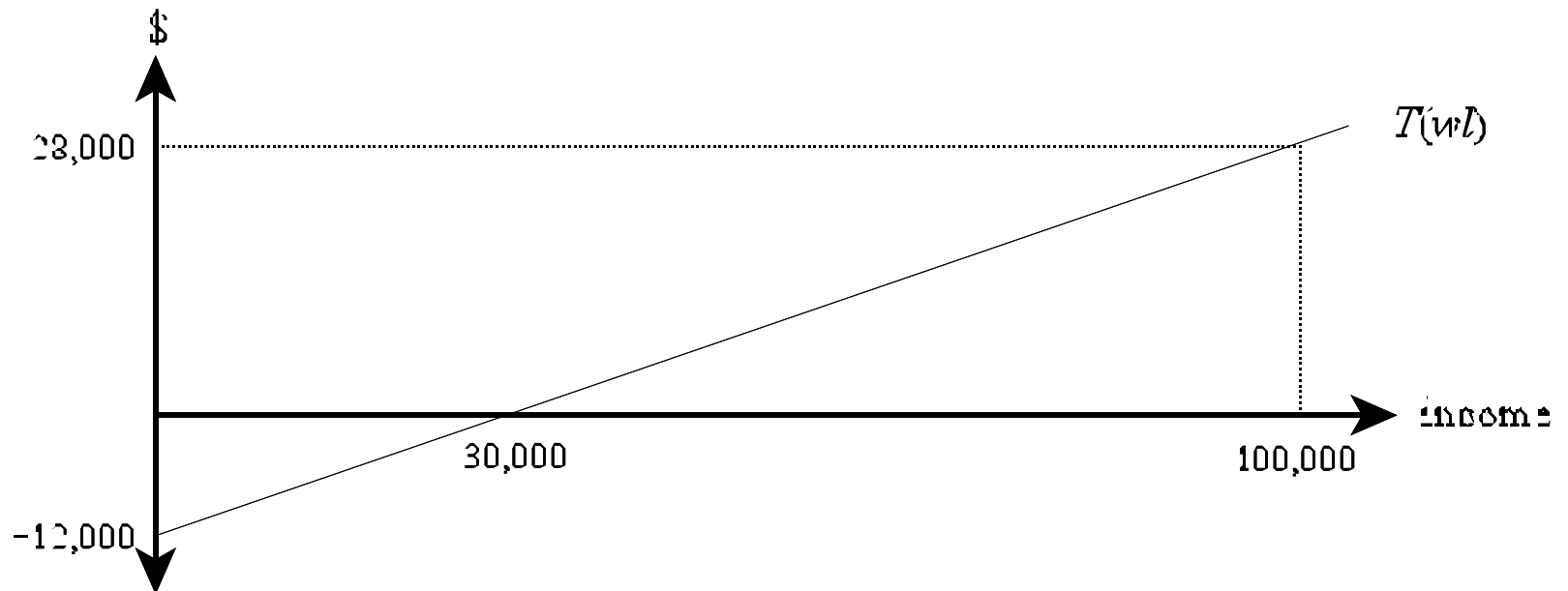
Figure 3.1
Nonlinear Income Tax and Transfer Schedule



Linear income tax

Figure 3.2

Linear Income Tax Schedule, $t = 40\%$ and $g = \$12,000$





Linear income tax: FOC

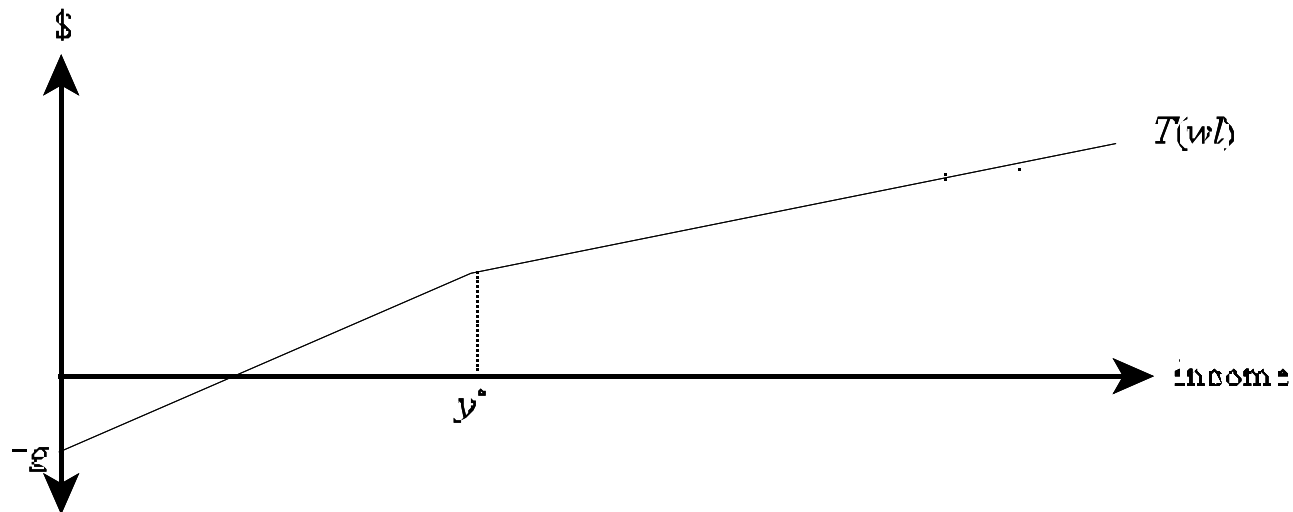
$$(3.7) \quad \frac{t}{1-t} = - \frac{\text{cov}(\alpha(w), y(w))}{\int y(w)\varepsilon(w)f(w)dw},$$

$$(3.8) \quad \alpha(w) = \frac{W'u_c(w)}{\lambda} + tw \left(\frac{\partial l(w)}{\partial g} \right)$$

- Stern (1976): $t=54\%$, $g=34\%$ of ave. inc.

Two-bracket income tax

Figure 3.3
Two-Bracket Income Tax Schedule



- Upper bracket w/ *lower* marginal rate
- More so as weight on equality increases



Nonlinear income tax: FOC

$$(3.9) \quad \frac{T'(w^*l^*)}{1 - T'(w^*l^*)} = \frac{1 - F(w^*)}{\xi^* w^* f(w^*)} \frac{\int_{w^*}^{\infty} \left(1 - \frac{W'(u(w))u_c}{\lambda}\right) f(w) dw}{1 - F(w^*)}$$

- Perturbation thought experiment
 - marginal folks (with income w^*l^*)
 - inframarginal folks (income $> w^*l^*$)
- $(1-F)/f$:
 - $1-F$ is fraction of population above marginal rate in question – collect more revenue inframarginally from them as raise marginal rate at a given point
 - f is density at margin, those who are distorted
- ξ^*, w^*
- Second term: average welfare cost to the group that pays the increase (for case with no income effects)
- Most (not all) simulations have high marginal rates that trail downward at top



Ability taxation

- Ideal tax is ability tax
 - explanation of Pareto improvement
 - could have full equalization
- Income taxed as observable signal of ability
 - source of incentive tradeoff
- Ability tax surrogates possible?
 - height? age?



Commodity Taxation

- Problem: choose relative tax rates on different commodities, *given an income tax that can be adjusted*
- Result: no differentiation optimal in basic case
 - Atkinson & Stiglitz (1976) showed true with optimal income tax; Kaplow (2006) extends to when income tax nonoptimal
- Intuition: adds additional distortion without helping on the redistribution/distortion tradeoff



Proof sketch

- Step 1: begin with differential commodity tax
 - note normalization issue: “average level” irrelevant because equivalent to shift in (labor) income tax schedule
- Step 2: abolish tax differentials and adjust income tax to hold utility level constant for each taxpayer (at each level of prior income)
- Step 3: this combined reform has no effect on labor supply
 - intuition: utility return to every level of labor effort same (for everyone); hence labor same
- Step 4: a surplus is produced (due to reducing the distortion of consumption choices)
- Step 5: pro rata rebate of surplus: Pareto improvement



Qualifications

- Commodities that interact with utility of labor-leisure choice:
 - higher tax rate on books, which are leisure complements, because discouraging leisure reduces labor supply distortion
 - subsidize central city amenities
- Other qualifications



Implications

- Ramsey taxation principles (inverse elasticity rule) essentially wrong in this setting (Atkinson & Stiglitz 1976, Stiglitz 1987)
- All analysis based thereon (e.g., of capital income taxation) not right when is an income tax
- Countless applications in remainder of survey
 - exemption of food from VAT, ...
 - taxation of savings (income versus consumption tax, etc.): standard income tax is equivalent to pure labor income tax plus differential taxation on commodities consumed in different periods
 - taxation of gifts: viewed as one sort of consumption expenditure
 - public goods: can compare “price” to marginal willingness to pay
- Are other complications:
 - interactions with labor supply – e.g., food example (groceries vs. restaurant meals)
 - externalities – e.g., pollution, gifts, ...
- Still, it provides general framework for assimilating many fiscal issues into common framework



Income vs. Consumption Tax

- Earn in period 1, consume in periods 1 and 2; model difference in terms of budget constraints (illustration with flat-rate tax, no grant)

$$(5.1) \quad wl(1-t) = c_1 + \frac{c_2}{1+r}$$

$$(5.2) \quad wl(1-t) = c_1 + \frac{c_2}{1+r(1-t)}$$



Analysis

- Interpret as differential commodity taxation
 - Consumption in different periods = consumption of two different commodities
- Atkinson-Stiglitz result applies
 - Note: not pro-rich because doing it distribution-neutral (income tax adjusts)
- Qualifications



Applications and implications

- Capital taxation generally
 - Including wealth taxation
 - Recent dynamic Mirrlees literature
 - “intertemporal wedge”
 - E.g., Golosov, Tsyvinski & Werning (2007) – NBER 2006 Macro Annual
- Administrative arguments for consumption tax
- Corporate income tax
 - As a form of differential capital taxation



Transfer (estate/gift) taxation

- Description/model: differential commodity taxation based on own- versus other-consumption
- Analysis (Kaplow 1998, 2001)
 - again, presumptively inefficient
- Gift externalities
 - Positive, to donee
 - Negative, income effect on donee
- Transfer motives, accidental bequests, income effects, other complications ...
- Note: again, integrating w/ income tax (which can tax rich however would like) transforms question and produces qualitatively different analysis & results
- Extension: charitable giving



Other types of taxation

- Social security
- State and local
- International



Transfer payments

- Optimal transfers: optimal income tax
- Categorical assistance
 - Model as type-specific income tax (ability taxation, above)
 - Results: phase-outs
- Work inducements
 - Hard to justify
 - Informational assumptions
- Cash versus in-kind



Public Goods

- Samuelson cost-benefit test
- Qualifications?
 - Distributive weights (anti-Kaldor-Hicks)
 - Labor supply distortion
- Neither!
 - Analogy to differential commodity taxation
 - Distribution-neutral income tax adjustment



Public goods: additional issues

- Relevance to optimal redistribution
 - Subtle
- Distributive incidence of public sector
- Benefit principle of taxation



Corrective taxation

- Pigouvian taxes and subsidies
- Qualifications?
 - Distributive weights
 - Labor supply distortion
- Neither – again
 - Analogy to differential commodity taxation
 - Distribution-neutral income tax adjustment



Choice of Instruments

- Coase theorem
- Taxes versus regulation
 - Prices vs. quantities debate with uncertain costs and harm
 - Property and liability rules
- Permits
 - Cost-minimization
 - Still a quantity regulation



Additional dynamic issues: Inflation

- Importance of failure to index (relative to other issues, like intended taxation of capital)
 - Ex.: real $r = 2\%$, infl. = 10% , nominal $i = 12\%$; $t = 50\%$
 - Difference between after-tax real return of 1% (indexed) and -4% (unindexed)
 - i.e., effective rate of 300% !
- Self-indexing in consumption tax



Risk-bearing

- Uncertain labor income
- Uncertain capital income
- Other losses (e.g., natural disasters)



Additional ...

- Transitions and capital levies
- Capital gains: realization requirement
- Human capital
- Lifetime horizon
- Intergenerational redistribution and budget deficits



Unit of taxation

- Marrieds vs. singles; number of children
 - Controversial
 - Qualitative changes over time
 - Differences across countries
- Huge common denominator problem – need link to objective function
- Approach
 - Positive model of family (e.g., models of sharing, as in Becker 1974)
 - SWF with each individual counting once



Analysis: distribution

- Does unequal sharing clearly favor “individualized” treatment? (no)
- Do scale economies clearly favor less generous treatment of marrieds? (no)
- Should child benefits be fixed amounts / declining with income? (no)
- Note: form of SWF and degree of risk-aversion (rate of declining MU of consumption) have qualitative effect here



Analysis: incentives

- Work
- Marriage
- Child-bearing



Administration & enforcement

- Importance of issues
- Choice of tax systems
- Optimal administration and enforcement of tax systems
 - Importance of relating to explicit SWF
 - Revenue ⑤ welfare
- Elasticity of taxable income



Tax base issues

- Exclusion of nonpecuniary income
 - Leisure
 - Compensating wage differentials
 - Housing and other consumer durables
- Business versus personal boundary
- Tax expenditure concept
 - And “tax penalties”



Forms of consumption taxation

- Cash-flow consumption taxation
 - Concept
 - Administrative benefits vs. income tax
- VAT and sales taxation



Tax equity

- Welfarism
 - Other norms can lead to Pareto conflicts
Proxy rationales
- Choice of social welfare function
 - “Original position”
 - Sufficiently egalitarian?
 - Whose welfare included?



Conclusion

- Integrated approach
 - Especially incorporation of income tax
 - Distribution-neutral analysis of many issues
- Explicit social welfare function
- Research agendas
 - Empirical
 - E.g., private transfers; charitable contributions
 - Administration and enforcement