Seminar on Public Finance

Lecture #6: February 20

Empirical Public Finance: Individual Taxation

Two competing goals: progressivity (more equality in net income) vs efficiency
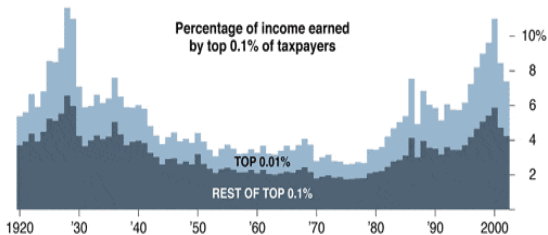
- First lets frame the debate: Evolving income inequality in the US

- Piketty-Saez (*QJE*, 2003), Income Inequality in the US, 1913-1998

- According to Kuznets, income inequality should follow an inverse-U shape along the development process, first rising with industrialization and then declining, as more and more workers join the high-productivity sectors of the economy [Kuznets 1955].

- The US appears to be reversing this process; one possibility is a new sort of industrial revolution.

- This analysis has become very widely used in the popular press. For example from the NYT:

Not Since the 20's Roared

The very wealthiest Americans — the 145,000 or so taxpayers whose incomes start at $1.6 million and put them in the top 0.1 percent — have pulled away from everyone else in recent decades, an analysis by The New York Times shows .

GROWTH IN INCOME

The share of the nation's income earned by the taxpayers in the top 0.1 percent has more than doubled since the 1970's, and in the year 2000 exceeded 10 percent, a level last seen in the 1920's.

Percentage of income earned by top 0.1% of taxpayers

TOP 0.01%

REST OF TOP 0.1%

1920   '30   '40   '50   '60   '70   '80   '90   2000

— 10%
— 8
— 6
— 4
— 2

GROWTH IN WEALTH

Even after adjusting for inflation, there are five times as many households as there were two decades ago with a net worth of more than $10 million. Not all have high incomes.

Number of households	ALL HOUSEHOLDS	Households with inflation-adjusted net worth of:		
		$1-5 MILLION	$5-10 MILLION	$10 MILLION+
in 1983	84 million	2.2 million	180,500	66,500
in 2001	106 million	4.8 million	729,400	338,400
Percent increase	+27%	+123%	+304%	+409%

Changes in the distribution of wealth

- Piketty-Saez examine income shares from IRS tax returns from the IRS code's inception to present.
- Observe changes in the composition of income sources over time (salaries and wages, dividends, interest income, rents and royalties, and business income) and percentage of total income accruing to the very top earners.
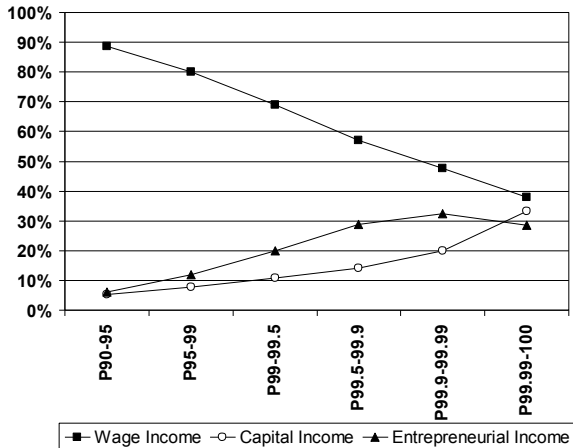- Data is kept up to date on Saezs webpage at Berkeley

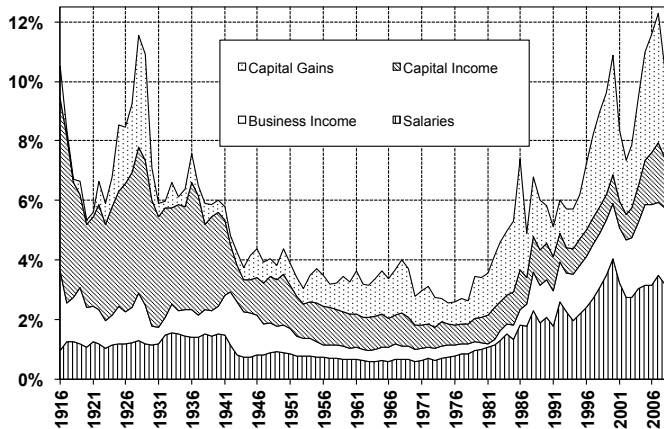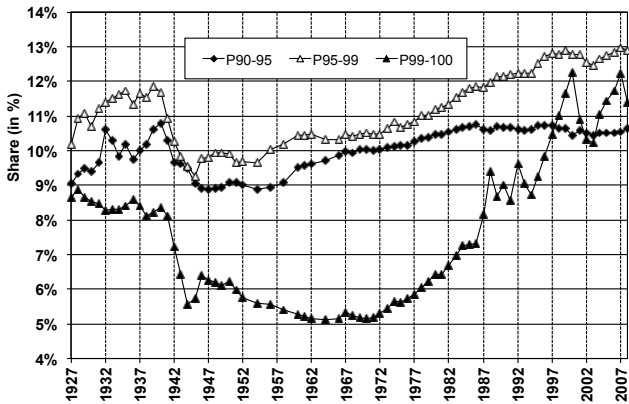# Income Composition of Top Groups within the Top Decile: 1929

Panel A: 1929

Legend: ■ Wage Income ─○─ Capital Income ─▲─ Entrepreneurial Income
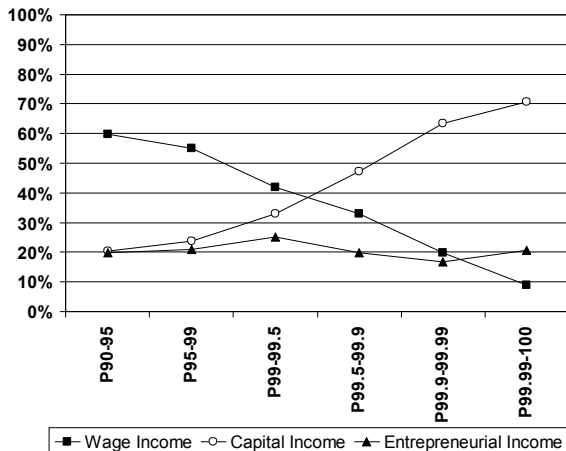
Income Composition of Top Groups within the Top Decile: 2007

Panel C: 2007

Legend: ■ Wage Income –○– Capital Income –▲– Entrepreneurial Income

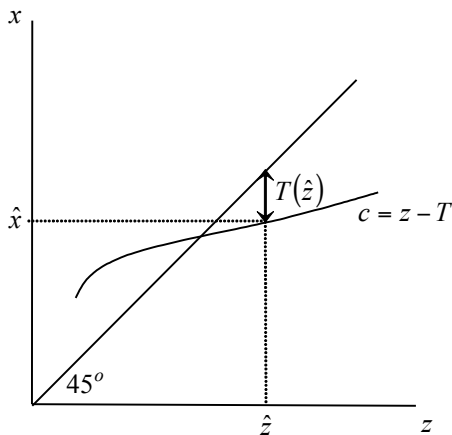# The Top 0.1% Income Share and Composition, 1916-2008

Basic Structure of the Income Tax

- Calculate AGI (Adjusted gross income)
  - Which is defined as total income form all taxable sources less certain expenses incurred in earning that income
    - These are "above the line" deductions
  - Taxable sources include (but are not limited to) wages, dividends, interest, business and farm profits, rents, & royalties
- Convert AGI into taxable income.
  - This is done by subtracting exemptions and deductions
    - Exemptions based on family size
    - Deductions for state and local taxes, home mortgage interest and charitable contributions are the big three
- Calculate amount of tax by applying a rate schedule.
- Adjust the amount of tax by claiming tax credits
  - For foreign taxes, child credits, education credits, etc

From Lecture #4: Mirrlees Model (3)

- Without a tax $x = z$ so the tax generates a departure from the $45°$ line.

- Where the consumption function, c, lies above the $45°$ line there is a payment to the individual line a negative income tax.

- The slope of the function is 1-(marginal tax rate)

US Tax/Transfer System, single parent with 2 children, 2009

Welfare:
TANF+SNAP

Tax credits:
EITC+CTC

Earnings after
Fed+SSA taxes

45 Degree Line

Simple Example

- Assume T=3000 hours to allocate between Labor and Leisure.
- Wage rate is $50 per hour
- There is a income guarantee of $40,000
- Marginal tax rate on wages is:
    - 75% on first $10,000, 70% on the next $10,000, and so on dropping by 5% points in $10,000 increments to a marginal tax rate of 40% between $70,000 and $80,000. Then the rate increases in 5% increments to 60% for income above $110,000
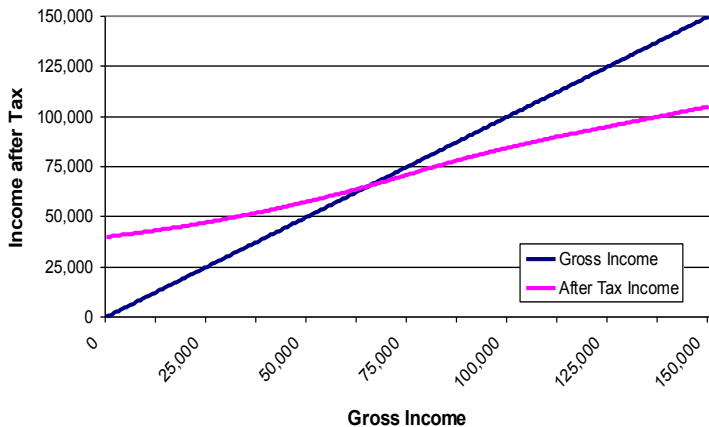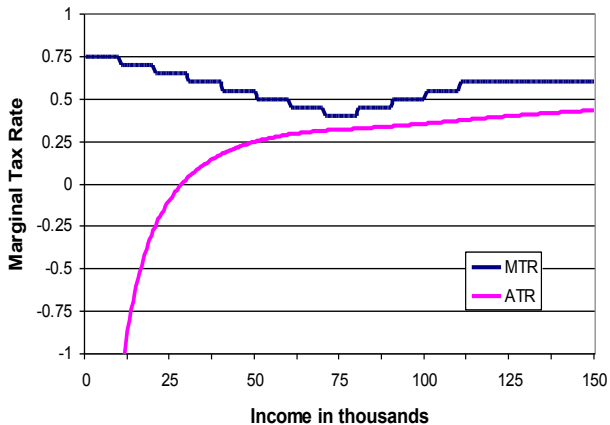
Marginal Tax Rates
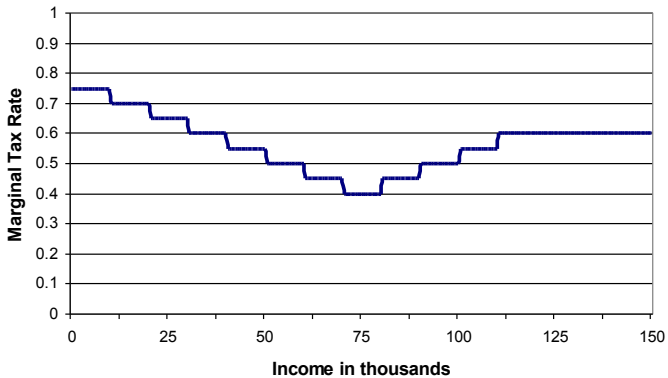
Labor-Leisure Choice

Tax Schedule

Income after Tax vs Gross Income

Legend:
- Gross Income
- After Tax Income
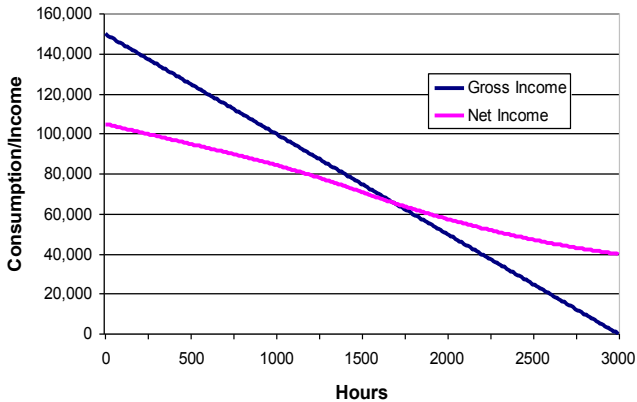
Economic Question Posed by an Income Tax

- One of the most important/critical/controversial topics of research in tax policy is : What impact do taxes have on consumer choices?
- In particular, do taxes alter work effort, and if so, what is the impact on overall economic activity?
- Income tax in a simple model is tax on labor.
- Basic labor supply model tells us that labor supply is a function of net wages and non-labor income:
- The standard result of the labor literature was that hours worked were largely unresponsive to the wage rate.

Economic Question Posed by an Income Tax (2)

- This labor literature result was carried over to the public finance literature - income was seen as unresponsive to taxation.
- Major tax changes in 1980's combined with advances in applied econometrics lead to studies that found significant responsiveness.
- This leads to greater concern for the excess burden of taxation.
- In the public finance literature the question is how do taxes change income, since taxes alter the net wage.

Measuring Distortionary Effects of an Income Tax: Feldstein (*JPE*, 1995) & (*REStat*, 1999)

- Following Harberger, large literature in labor economics estimated effect of taxes on hours worked to assess efficiency costs of taxation
- Feldstein observed that labor supply involves multiple dimensions, not just choice of hours: training, effort, occupation
- Taxes also induce inefficient avoidance/evasion behavior
- As such, if you want to examine the full DWL you somehow have to deal with all these dimensions. Two approaches:
  1. Structural (or explicit) approach: account for each of the potential responses to taxation separately (separate elasticities) and then aggregate
  2. Reduced form (sufficient statistic): Feldstein shows that the elasticity of taxable income with respect to taxes is a sufficient statistic for calculating deadweight loss

Deriving Feldstein (1999) Result

Model Setup

- Government levies linear tax t on (reported taxable) income
- Agent makes N labor supply choices: $l_1, ..., l_N$ (hours, training, occupation, etc.)
- Each choice l_i has disutility $\psi_i(l_i)$ and wage w_i
- Agents can shelter e dollars of income from taxation by paying cost $g(e)$
- Taxable Income (TI) is $TI = \sum_{i=1}^{N} w_i l_i - e$
- Consumption is given by post-tax taxable income plus untaxed income: $c = (1-t)TI + e$

Deriving Feldstein (1999) Result (2)

- With this setup, Feldstein shows that the DWL of the income tax is equivalent to the DWL of an excise tax on ordinary consumption. Intuition is that since taxes do not change the relative price of the different margins of labor supply, then it is not necessary to know the elasticities of each margin.

- In terms of the model, he shows that:

$$\frac{dW}{dt} = t\frac{dTI}{dt}$$

  - Key intuition: marginal social cost of reducing earnings through each margin is equated at optimum $\rightarrow$ irrelevant what causes change in TI.

Empirical Applications: Deriving Feldstein (1999) Result (3)

- He then shows that

$$DWL = -0.5 \frac{t^2}{1-t} \varepsilon_C C = -0.5 \frac{t^2}{1-t} \varepsilon_{TI} TI$$

  - Therefore: to eval the full DWL of taxation we can use the estimated elasticity of taxable income $\rightarrow$ sufficient statistic

- Simplicity of identification in Feldstein's formula has led to a large literature estimating elasticity of taxable income: $\frac{dlog(TI)}{dlog(1-\tau)}$

- A disadvantage of this sufficient statistic approach: primitives (e.g., $g(e)$, $\psi(l)$) are not estimated, assumptions never tested

Elasticity of Taxable Income

- However, estimates of ETI obtained over the years vary from extremely high (well over 1) to near zero.
  - Generally higher for those with high income
  - Generally lower for males
  - Women's elasticities have been shrinking as more attached to labor force
- Consequently, even modest tax rate changes can be shown to have major DWL and tax revenue changes given the elasticity used.
- This result is controversial and has significant implications for policy choices.

Elasticity of Taxable Income (2)

- Returning to the labor supply choice. That model would have $l = f(w, TI)$.
- Is there a problem with estimating the basic equation?

$$l = \alpha + \beta w_{net} + \gamma TI_{net} + \delta X + \varepsilon$$

- First apparent problem:
    - $w_{net} = (1-t)w$ and $TI_{net} = (1-t)TI$ but t depends on gross income.
    - Hence w_{net} and TI_{net} are endogenous, they are a function of the choice of l.

How to Solve the Endogeneity Problem

Primary approaches:

- Instrumental Variables
  - Find variables that are correlated with where you are on the constraint/in the income distribution but not correlated with the choice of hours
  - Typically lagged values often used
- Natural Experiments
  - Use tax policy changes and compare to control group not impacted by the change
  - Primary method due to the tax rate changes of the last 20 years.

Empirical Lit has focused on the top tax rate using lower rates as controls
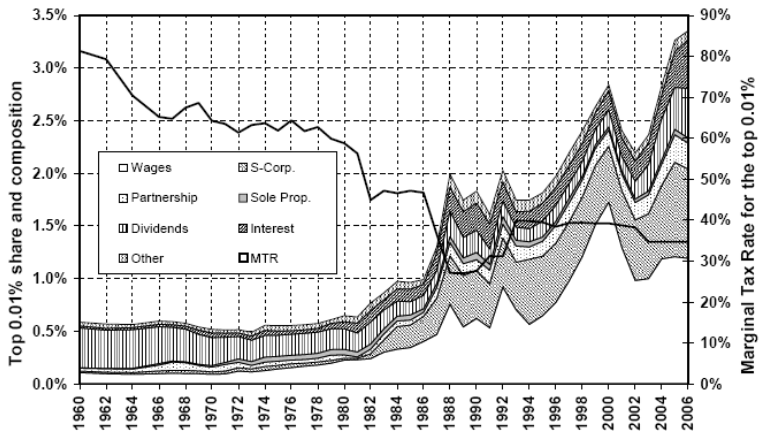
2. Federal Average Tax Rates by Income Groups (individual+corporate+payroll+estate taxes)
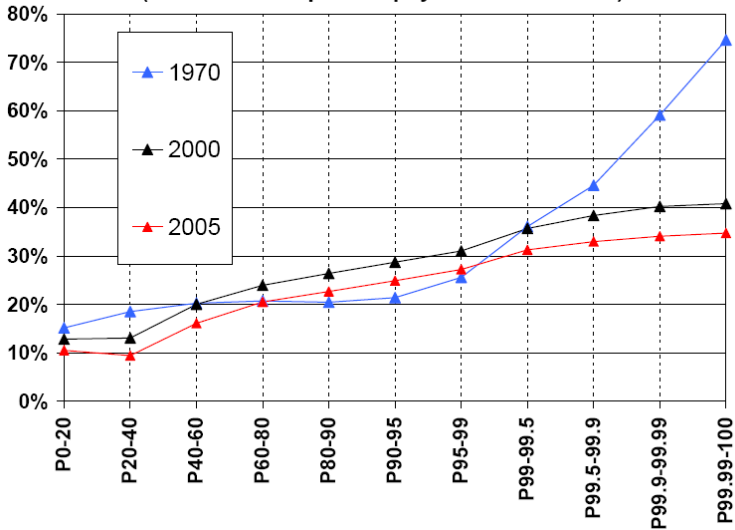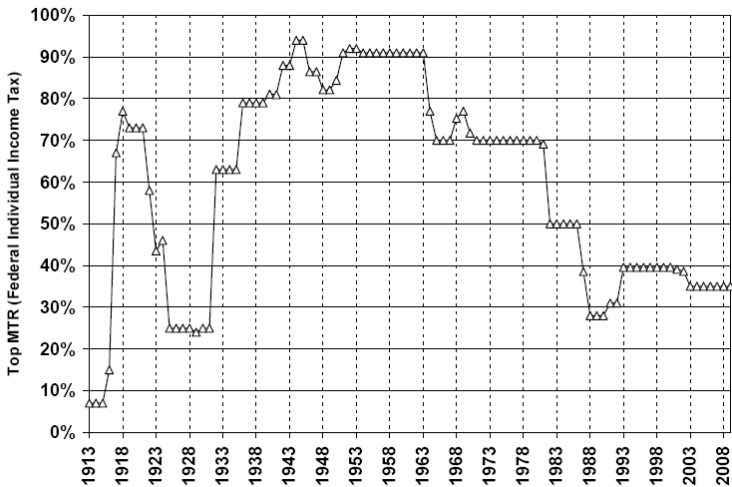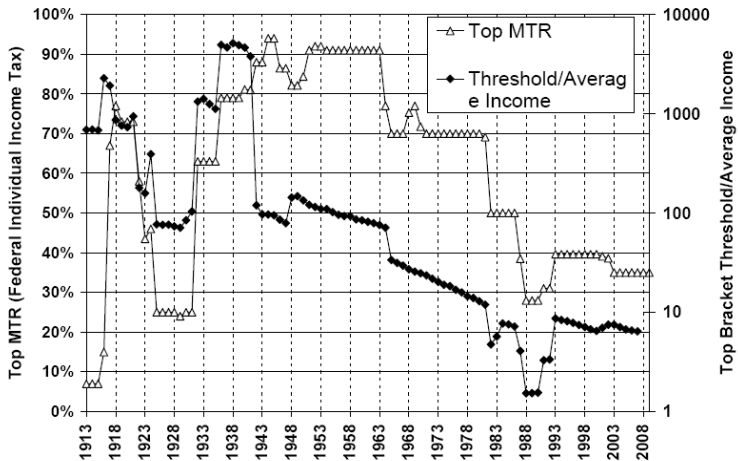
US Top Marginal Tax Rate (Federal Individual Income Tax)

US Top Marginal Tax Rate and Top Bracket Threshold

Literature on the ETI

Lindsey (*JPubE* 1987)

- Examined the 1981 Economic Recovery Act (ERTA81) which substantially cut tax rates.
  - Top rate went from 70% to 50%
- Used two cross sections of tax data, 1979 and 1982.
- Default assumption is that the 1982 data would have looked just like the 1979 data in the absence of ERTA81.
- Segmented each into fractiles and assumed that paired fractiles between years related to the same individuals.
  - Equivalent assumption is that each sample was representative of the same group of underlying taxpayers.
- He then compares the changes in average taxable income to changes in their marginal rates.
- The resulting estimates of the ETI were surprising large, between 1.6 and 1.8.

Literature on the ETI (2)

Two big problems: one was known at the time the other has become clearer with history

1. The lack of panel data required a very strong assumption that two cross sections are equivalent to a panel.
2. Lindsey did not control for exogenous shifts in the income distribution.
   - If there is a secular change in the income distribution, particularly at the upper end where rates are changing the most, then estimates based on an income tax cut will overestimate the ETI.
   - The change in income due to other factors are being attributed to the tax change.

Literature on the ETI (3)

- Feldstein (*JPE* 1995) was the first to use panel data set up, combined with the natural experiment around TRA86. This corrected for some of Lindsey's problems.
- But still the resulting ETI for the two highest groups ranged between 1.1 and 3 with a central estimate of 2.14.
- Problems:
  - Has the same problem as Lindsey in ignoring secular changes in the income distribution
  - Extremely small sample size that happened to have big outliers that appear to drive the result.

Literature on the ETI (4): Mean Reversion in Income

- Mean reversion of income occurs because one's income both follows a long run pattern over the life cycle as well as being subject to year to year fluctuations.
- After observing income that is extremely high or low for a period(s) it often "reverts" to the normal path.
- We tend to see more of this type of behavior at the tails of distribution.
- Not controlling for mean reversion will bias estimates.
  - During a tax cut the ETI will be biased up for high income individuals and biased down for low income individuals.
  - No reason to suspect that these offset one another.
- Low income individuals are some times explicitly excluded (like in Lindsey and Feldstein) or implicitly excluded via the use of tax data itself.

Literature on the ETI (5)

Auten and Carroll (*REStat* 1999)

- Studied the natural experiment of TRA86 like Feldstein but with a larger dataset.
- Via instrumental variables and some exogenous variables they believe that they have controlled for the widening of the income distribution and mean reversion of income.
- Their preferred elasticity estimate is 0.55

Literature on the ETI (6)

Goolsbee (*JPE* 2000)

- Studied Omnibus Budget Reconciliation Act of 1993 (OBRA93)
  - OBRA93 added to new high income brackets at 36% and 39.6%
  - This tax change was a campaign promise of Clinton thus as of November it could have been anticipated.
- Rather than tax data Goolsbee used compensation data for executive of public traded companies.
  - Provides a large sample of high income individuals
  - Clearly not a random sample
- This data allows him to observe varied forms of compensation; salary, bonus, long-term incentive plans, options and "other" income.

AVERAGE COMPENSATION BY TYPE FOR HIGH-INCOME EXECUTIVES (in 000's)

	1991	1992	1993	1994	1995
Taxable Income	911	1153	974	965	1173
Salary	347	336	336	351	373
Bonus	198	207	241	284	330
LTIP payout	57	72	57	64	89
Options Exercised	268	496	293	235	381
Other Income (non-taxed)	36	37	66	54	78
Options Granted	--	510	312	379	484

Source: Author's calculations for executives with permanent income greater than $275,000 per year.

Literature on the ETI (8)

Goolsbee (*JPE* 2000) con't

- Goolsbee emphasizes the difference between transitory shifts and more permanent changes
- If he doesn't control for shifting the ETI is in excess of 1.
- Once controls for shifting across years are considered the elasticity is at most 0.4.
  - Once you exclude the impact of stock options the elasticity appears to be zero.
- Taxes may not create as large DWL as expected but there may be significant behaviors that reduce tax revenue.

Literature on the ETI (9)

Goolsbee (*JPE* 2000) con't

- This paper is important because of the focus on shifting behavior.
- Problems include:
  - Interpreting the implications for the population at large. The sample is an unique group.
  - Is there a survivorship bias? We only see people in the sample if they continue as corporate officers.
  - Lack of controls for personal characteristics

Literature on the ETI (10)

Gruber and Saez (*JPubE* 2002)

- Look at the changes of both ERTA81 and TRA86.
- Use a 1979-1990 panel of tax returns.
- They analyze behavior over 3 year periods, instrumenting for tax rates via the 1st year income measure.
- Find an overall ETI of 0.4
  - ETI for itemizers is 0.57 while for non-itemizers it is zero.
- ETI for a broader definition of income is statistically insignificant (0.12)
  - It is unclear whether 3 year periods are sufficient to control for the income shifting that Goolsbee found.

Literature on the ETI (11)

Gruber and Saez (*JPubE* 2002) con't

- Their specification allows them to isolate the income effect of the tax rate changes.
- They find small negative income effects.
- Since the income effects are small the compensated and uncompensated elasticities will be similar.
    - Relevant for the measurement of excess burdens

Literature on the ETI (12)

Giertz (*NTJ* 2007)

- Analyzes the elasticity of taxable income over the 1980s and 1990s
- Replicates Gruber Saez (2002) for the same time period (1980s), using a similar data set, then re-estimates for the 1990s.
- Finds an ETI of 0.4 for the 1980s, then finds a lower one for the 1990s: 0.2. This paper does a wonderful job in summarizing the econometric problems / data issues associated with many of the historical, seminal studies as well as current work in this area.
  - treating cross sections as panels
  - sparse/ top coded data sets
  - sampling issues (SOI vs CWHS)
  - mean reversion
  - differing ETIs across ranges of income
  - definitions of income used (broad vs wage)
  - controlling for non-tax related trends
  - income shifting

Literature on the ETI (13): Trade-off in Controls for Endogenous Tax Rates

- As income changes so do tax rates, hence tax rates are endogenous and have to be instrumented for.
- Big question is how long a lag to use?
- Shorter lag means that changes in the underlying income distribution are less pronounced. Thus the estimated effect is the tax effect.
- Longer lags mean we are more likely to get behavior not just income shifting, but harder to control for shifts in the income distribution.

Literature on the ETI (14): Results from time series

	Top 1% (1)	Next 9% (2)
A. Tax Reform Episodes		
1981 vs. 1984 (ERTA 1981)	0.60	0.21
1986 vs. 1988 (TRA 1986)	1.36	-0.20
1992 vs. 1993 (OBRA 1993)	0.45	
1991 vs. 1994 (OBRA 1993)	-0.39	
B. Full Time Series 1960-2006		
No time trends	1.71 (0.31)	0.01 (0.13)
Linear time trend	0.82 (0.20)	-0.02 (0.02)
Linear and square time trends	0.74 (0.06)	-0.05 (0.03)
Linear, square, and cube time trends	0.58 (0.11)	-0.02 (0.02)

Literature on the ETI (15): Results from repeated cross-sections

Elasticity estimates using the 1993 top rate increase among top 1% incomes

Control group	next 9%	next 49%
	(1)	(2)
A. Repeated Cross Sections Analysis		
A1. Comparing two years only		
1992 and 1993	0.284	0.231
	(0.069)	(0.069)
1991 and 1994	-0.363	-0.524
	(0.077)	(0.075)
A2. Using all years 1991 to 1997		
1991 to 1997 (no time trends controls)	-0.373	-0.641
	(0.053)	(0.052)
1991 to 1997 (with time trends controls)	0.467	0.504
	(0.073)	(0.071)

B. Panel Analysis
B1. Comparing two years only

1992 to 1993 changes (no controls)	1.395	1.878
	(0.107)	(0.184)
1991 to 1994 changes (no controls)	2.420	3.352
	(0.221)	(0.446)
1992 to 1993 changes (log base year income control)	-0.721	0.814
	(0.213)	(0.149)
1992 to 1993 changes (+splines income controls)	-1.669	-1.866
	(1.052)	(0.711)

B2. Using all 1991-1992,...,1996-1997 changes

No income controls	1.395	1.878
	(0.296)	(0.338)
Base year log income control	0.537	0.955
	(0.264)	(0.247)
Base year log income + splines controls	0.564	0.723
	(0.259)	(0.260)
Base year log income + splines controls (using predicted MTR change instrument)	0.143	0.237
	(0.200)	(0.077)

Frontier research on elasticities: Using the tax code to identify ETI

- For most of the studies above, a non-linear tax code has been a problem (rate endogenous to earnings)
- Most recent empirical literature leverages these non-linearities to identify elasticities.

Panel A. Indifference curves and bunching

Individual L indifference curve

Individual H indifference curves

After-tax income $c = z - T(z)$

Slope $1-t-dt$

Individual L chooses z^* before and after reform
Individual H chooses $z^* + dz^*$ before and z^* after reform
$dz^*/z^* = e\, dt/(1-t)$ with e compensated elasticity

Slope $1-t$

z^* $z^* + dz^*$

Before tax income z
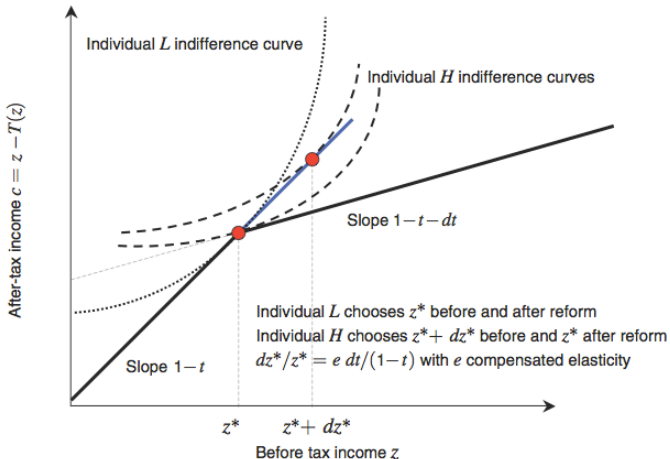
Saez, "Do Taxpayers Bunch at Kink Points?", (*AEJ: Policy*, 2010)

- Basic prediction of kinked budget constraint model is that we should see people bunched at the convex kinks. (And we should see a gap in the distribution at nonconvex kinks.)

- Some papers have examined particular applications (social security earnings test, welfare recipients around notch, WFTC and hours restriction) but no study has examined this among taxpayers in US.

- Simple, clever paper using the best data (tax data)

"Do Taxpayers Bunch at Kink Points?" (2)

Modeling insights

1. Less curvature in indifference curves (higher substitution elasticity) $\rightarrow$ more bunching
   - $dz^*/z^* = e[dt/1 - t], where\ e =$comp elasticity of TI, $t = MTR$, $z =$taxable income
2. Therefore if there is little evidence of bunching (and model is valid) $\rightarrow$ small elasticity of taxable income.
3. Later he considers changes to model to explain lack of bunching (uncertainty in income, constrained hours choice)

"Do Taxpayers Bunch at Kink Points?" (3)

Results:

- EITC: Fig 3-5
    - Uses data from 1995-2004. Why? Income tax schedule for EITC is stable (in real terms) during this time period.
    - Presents figures by number of children (since schedule varies along that dimension)
    - Some evidence of bunching around EITC first kink. Results concentrated for those with self employment income (no effect for those with only wage income)
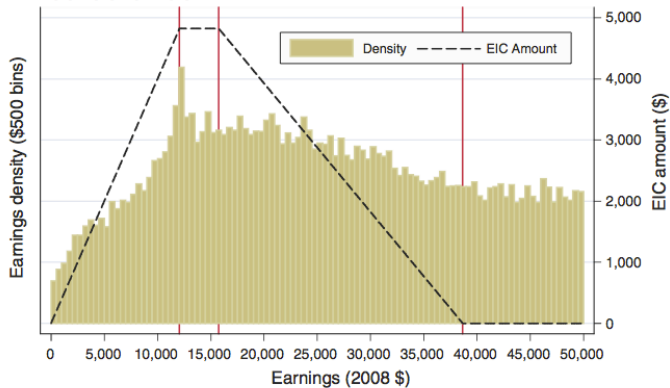
B. Two children or more

FIGURE 3. EARNINGS DENSITY DISTRIBUTIONS AND THE EITC
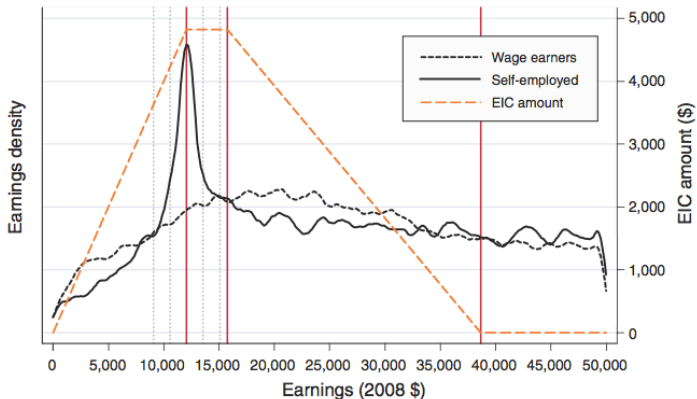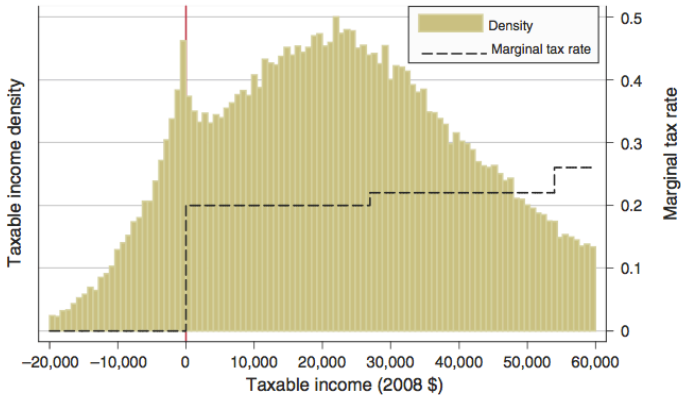
Panel B. Two or more children

FIGURE 4. EARNINGS DENSITY AND THE EITC: WAGE EARNERS VERSUS SELF-EMPLOYED

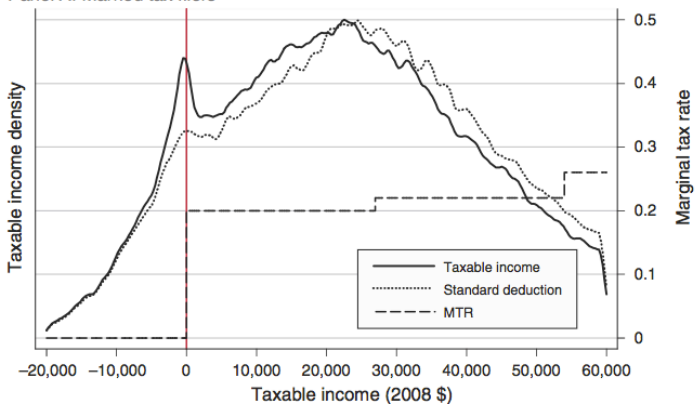# "Do Taxpayers Bunch at Kink Points?" (4)

Results:

- Federal Income Tax: Fig 6/7
    - More complicated to show since the schedule varies across family types (marital status), number of children, and deductions. Normalize rel to 0.
    - Some evidence of bunching around 1st kink (MTR goes from 0 to 15%)
    - More evidence for single and HH returns
    - First kink probably the most "visible" to taxpayer. But could the finding be an artifact that those left of 1st kink do not have to file and may not be in data?

Panel A. Married tax filers

Legend: Density, Marginal tax rate

X-axis: Taxable income (2008 $)
Left Y-axis: Taxable income density
Right Y-axis: Marginal tax rate

Panel A. Married tax filers

Taxable income density (left axis) / Marginal tax rate (right axis) vs. Taxable income (2008 $)

Legend:
— Taxable income
···· Standard deduction
- - - MTR

Implication:

- Small elasticities for wage earners
- Simulations using extended model again shows no clustering. So these models are not right or elasticities are small or agents do not know where kinks are.
- Problematic for research using kinked budget constraint methods

Why don't we see more bunching at kink points?

- True elasticity of response maybe small
- There maybe a random component in the income generation process; lack of the complete control implies by theory
- Salience: what do people know and respond to
- What are the adjustment costs

# Literature on the ETI (17): Where is the literature going?

- Now recognize the limitations of a reduced form parameter like the ETI, see recent work by Raj Chetty and others
- Need to look specifically at the specific avenues of response to tax rate changes.
  - Adjustment of hours worked (earnings)
  - Shifting of income and deductions across time
  - Shifting form of income
  - Portfolio shifting
  - Shifting between corporate and non-corporate
  - Change in use of deductions (legal avoidance)
  - Tax evasion (illegal avoidance)

The Top 0.01% US Income Share, Composition, and MTR
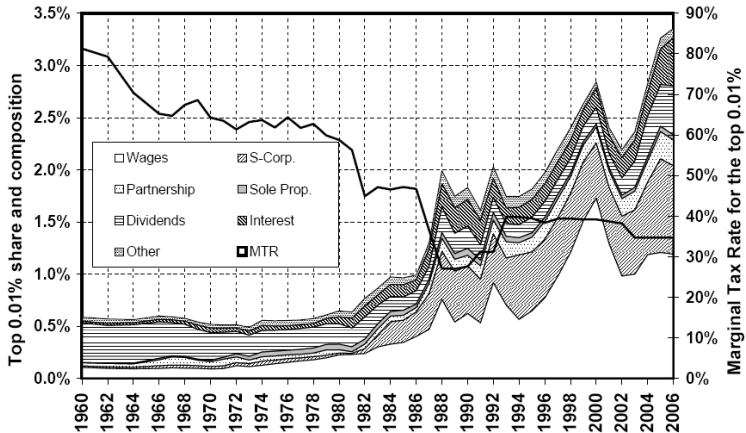
SOURCE IS LANDAIS '09
Charitable contributions as a % of total income and MTR on ordinary income
Top .01% tax units, United States, 1915-2005
(fractiles computed by total income excluding capital gains)
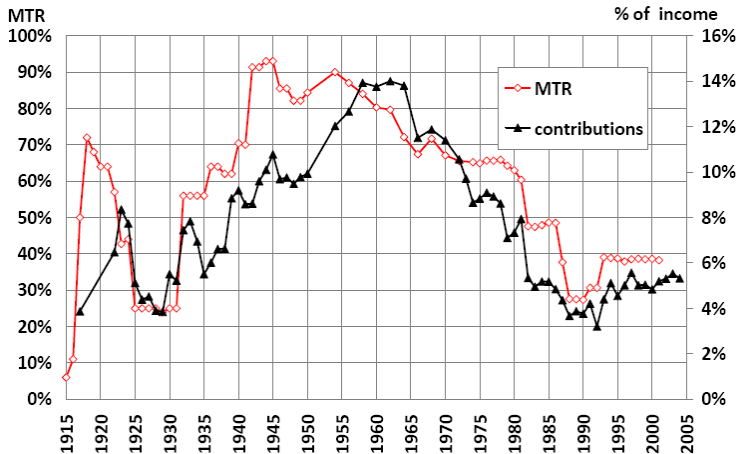
Impact of Social Security Tax: Liebman and Saez (2006)

- Looks a different but related question that has current policy implications.
- What is the impact of raising the cap on income subject to Old Age Survivors and Disability Insurance (OASDI) payroll tax of 12.4%?
- Currently the first $113,700 (2013) of a workers earnings are subject to this tax.
  - This level is indexed by average wages.
  - Because of changes in the income distribution the portion of total wages subject to the tax has been falling.
  - Further wage compensation hasn't been growing as fast as total compensation further eroding the base
- Tax is split between workers and employers but most agree that the incidence is on the worker.
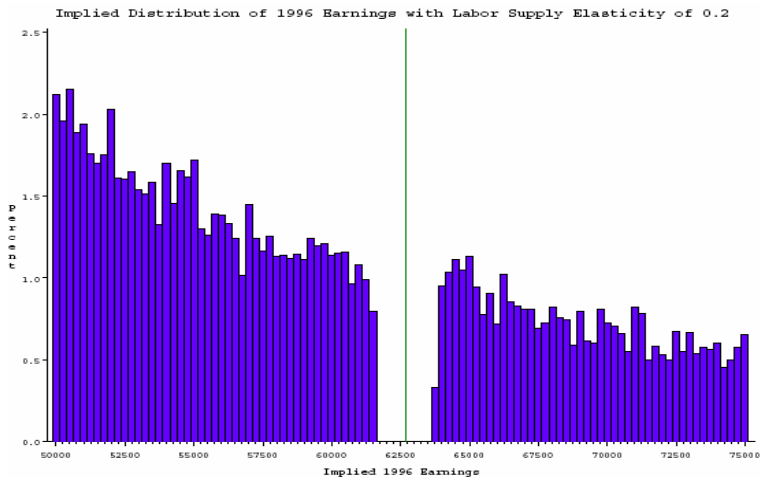
Impact of Social Security Tax (2)

- One possible way to "fix" social security is to increase the wages subject to the payroll tax.
- Some have argued that this is not an efficient way to raise revenue.
    - High deadweight loss since increasing rates just on the top end who already face high rates.
    - Previous literature show that higher income workers more responsive to low.
- Others counter: Perhaps the loss isn't so bad if we are just raising the cap.
    - Change is inframarginal for many.
    - Earnings is a broad category that seems to have a lower elasticity than taxable income.
- Liebman and Saez argue we shouldn't take the ETI literature as the final answer, we should look at the payroll tax directly.
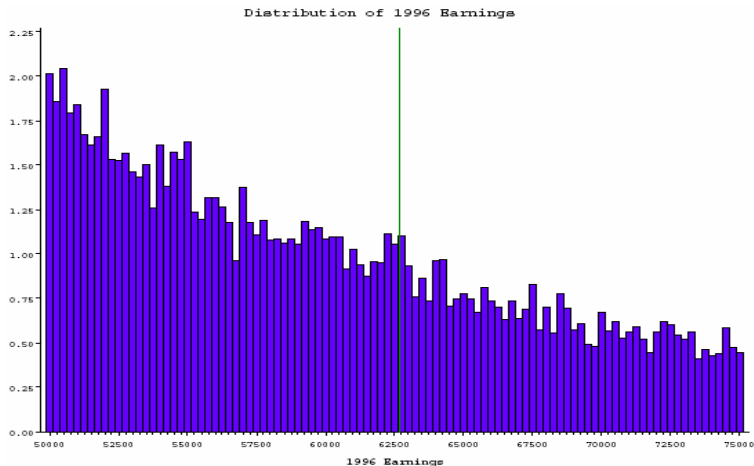
Impact of Social Security Tax (3)

- Data
  - They avoid using tax data because the payroll tax is a tax on the earnings of an individual rather than a family.
  - Uses the Survey of Income and Program Participation (SIPP) data matched to earnings data for the period 1981-1999.
- Since the payroll cap generate a kink in the budget constraint, theory predicts that we should observe workers "moving away" from this point.
- In the data we do not observe this
- Rather we see a relatively smooth distribution around this threshold

Impact of Social Security Tax (4): Theory Predicts

Implied Distribution of 1996 Earnings with Labor Supply Elasticity of 0.2

Distribution of 1996 Earnings

Impact of Social Security Tax (6)

- Possible explanations:
    - There is a hump in underlying earnings that masks the gap.
    - People can not control their earnings precisely. There is a random component.
    - Workers control their earnings in the long run but not in the short run.
    - People don't understand the tax schedule.
- All except the first imply that individuals do not respond dramatically to MTRs and hence there should be low excess burdens.

Impact of Social Security Tax (7)

- If the raw data didn't convince you Liebman and Saez then move to a natural experiment analysis.
- No significant natural experiments with the OASDI tax so they use other tax changes, TRA86 and OBRA93.
- Note that the prior literature focused on the change in taxable income while they are going to focus on the response of earnings.
- They look at the change in high income workers using lower income workers as a control group.

Impact of Social Security Tax (8)

- Looking over a long panel do we see the type of systematic changes that would be driven by tax policy changes?
- Figure 4 shows the earning of married men relative to 1981 earnings for 6 groups based on average earnings:
  - 1st-75th percentile, 75th-80th percentile, 80th-90th percentile, 90th-95th percentile, 95th-99th percentile and >99th percentile.
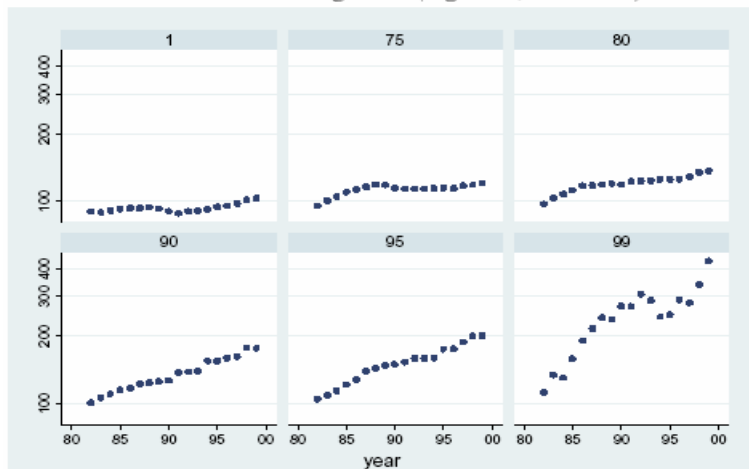
Liebman and Saez, Figure 4
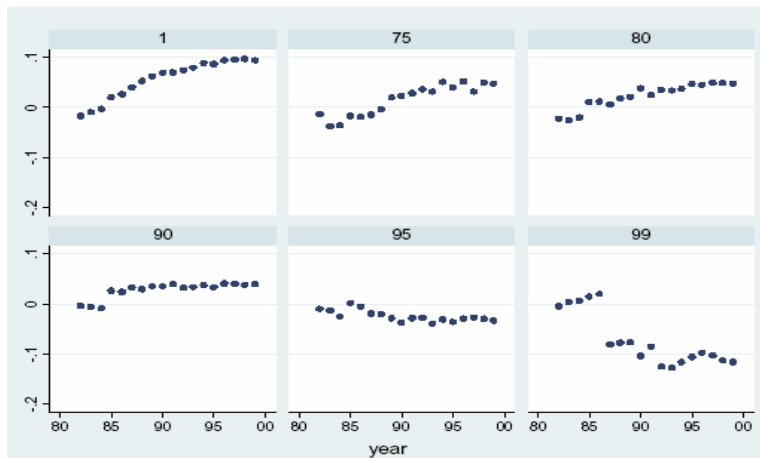

Dollar Increase
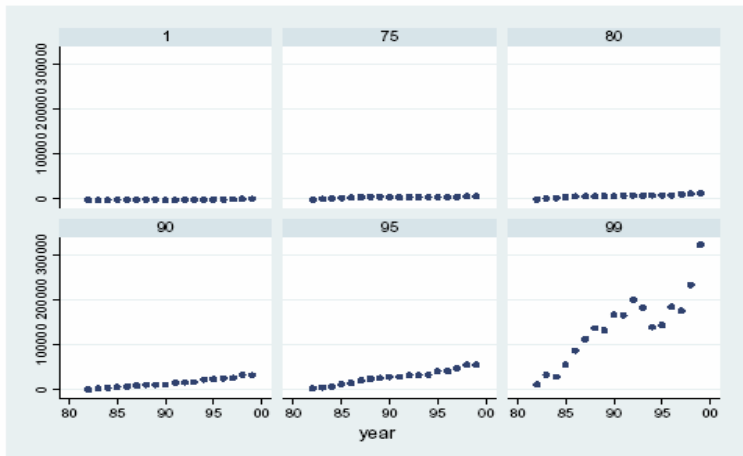
Liebman and Saez, Figure 4 cont

Increase relative to 1981 earnings level (log scale, 1981=100)

Liebman and Saez, Figure 5

Change Relative to 1981 in Fraction of Wives with Positive Annual Earnings by Earnings Group in TRA86 SIPP-SSA Sample

Impact of Social Security Tax (9)

- They conclude that there appears to be no systematic change surrounding TRA86.
  - There maybe something going on in the top group but there is not much variability for this group it is not likely that we can isolate the tax change.
- Further they call into question the previously accepted strategy of using lower income groups as a control group in a natural experiment framework.
- They also analyze the OBRA93 changes with similar results.

- Using their data and the assumption that workers bear the burden of the OASDI tax they run a series of policy simulations.
  - Consider an increase in the cap and removing the cap under differing behavioral elasticities.
  - Consider offsetting income tax effects.
  - Once the elasticity ≥ 0.5 the policy experiment pushes the top rate beyond the Laffer revenue maximizing rate.

Impact of Social Security Tax (11)

Findings:

- Workers with an increase in MTR are largely married males which have small elasticities.
- Observed earnings distribution is inconsistent with large behavioral elasticities.
- Significant changes in earnings at the high end of the distribution but no change in the trend around tax changes.
- Growth in the tail is so much greater than for the income distribution as a whole that a natural experiment approach may not be appropriate.
- Samples of high income earners too small to have much confidence in behavioral elasticities.

Impact of Raising Taxable Maximum Under Different Earnings Elasticities				
	Elasticity = 0.0	Elasticity = 0.2	Elasticity = 0.5	Elasticity = 0.8
Current System				
Mean Earnings	$34,214	N/A	N/A	N/A
Mean OASDI Revenue	$3,664	N/A	N/A	N/A
Mean Dead Weight Loss	$0	$806	$2,016	$3,226
90 Percent of Earnings Taxed				
Mean Earnings	$34,131	$34,029	$33,876	$33,724
Mean Dead Weight Loss	$0	$864	$2,147	$3,412
Static Δ in OASDI Revenue	$170	N/A	N/A	N/A
Δ in OASDI Revenue	$168	$155	$136	$118
Δ in HI Revenue	-$3	-$6	-$11	-$16
Δ in Federal Income Tax Revenue	-$25	-$53	-$96	-$138
Δ in State Income Tax Revenue	-$3	-$8	-$13	-$19
Total Δ in Tax Revenue	$136	$88	$17	-$55
100 Percent of Earnings Taxed				
Mean Earnings	$33,945	$33,591	$33,059	$32,529
Mean Dead Weight Loss	$0	$1,036	$2,524	$3,936
Static Δ in OASDI Revenue	$596	N/A	N/A	N/A
Δ in OASDI Revenue	$562	$517	$449	$381
Δ in HI Revenue	-$10	-$19	-$36	-$52
Δ in Federal Income Tax Revenue	-$88	-$199	-$365	-$532
Δ in State Income Tax Revenue	-$11	-$26	-$49	-$70
Total Δ in Tax Revenue	$454	$272	$0	-$272