Income Distribution and Policy

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Econ821

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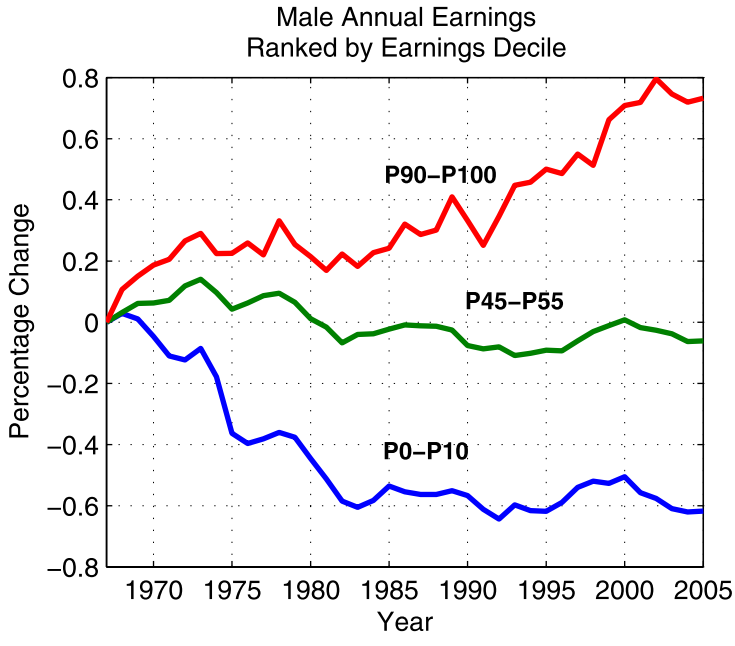
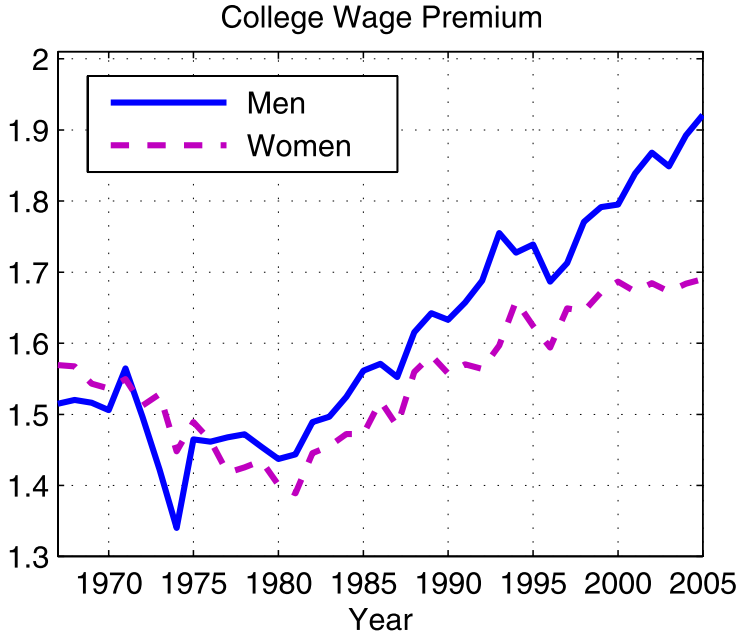
Facts: Rising Inequality

Data from Heathcote et al. (2010)

Rising wage inequality



Rising college premium



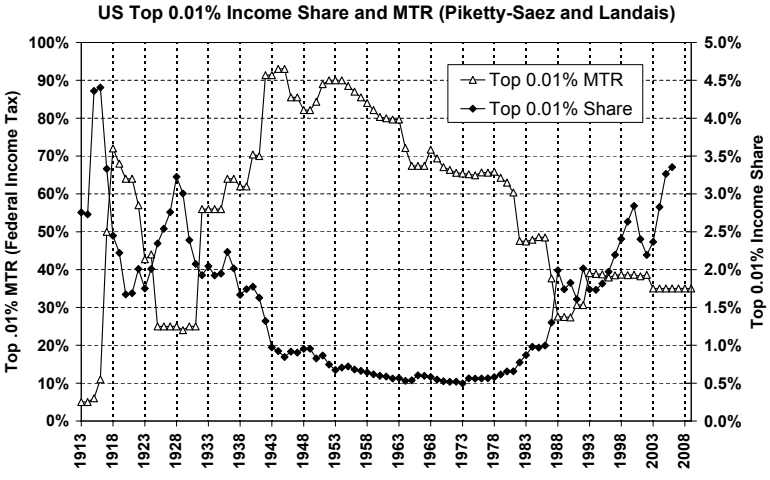
College premium and college labor supply are rising at the same time

The most common interpretation: **Skill-biased technical change** (Katz and Murphy, 1992).

The Role of Taxes

The very rich are getting richer.

This seems to have something to do with taxes



Source: Piketty and Saez

Popular Topics

1. Why have the richest gotten richer?
    (a) What is the role of taxes?
2. How expensive is redistribution from rich to poor?

Taxing the Rich I: Guner and Ventura (2014)

Question: If we tax the rich more,

- how much tax revenue do we gain?
- how much output do we lose?

Approach:

- start from a standard model: Huggett (1996)
- add labor supply choice
- add taxes
- tilt the tax schedule to change progressivity
- compare steady states

Model Details

Mostly Huggett (1996).

Departures are as follows.

Preferences:

Households value leisure

$$u(c,l) = \ln(c) + \varphi \frac{l^{1+1/\gamma}}{1+1/\gamma} \tag{1}$$

Taxes

The budget constraint is now

$$c_j + a_{j+1} = a_j (1 + r) + (1 - \tau_p) we (\Omega, j) l_j + TR_j - T_j \tag{2}$$

with:

- τ_p is social security tax
- TR_j is social security transfer
- $T_j = T_f (I) + \tau_l I + \tau_k r a_j$ is tax payments
- $I = we (\Omega, j) l_j + r a_j$ is income

Government budget and social security budget are balanced.

Calibration

Mostly standard choices.
Earnings process:

- a small fraction (1%) of agents are superstars with high permanent draws θ
- all from Kaplan (2012)

Key parameter: **labor supply elasticity**

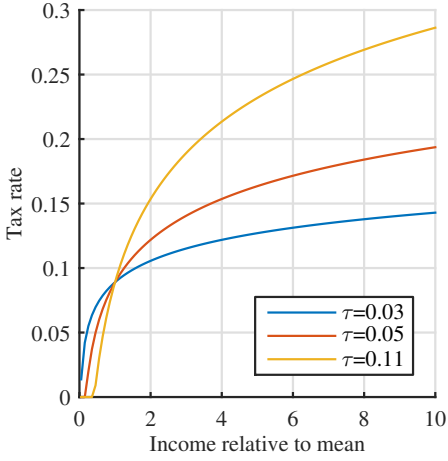
- set to 1

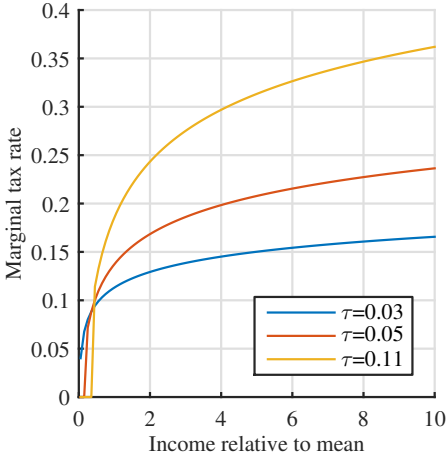
Tax structure

From Benabou (2002)

$T_f(I) = It\left(\tilde{I}\right)$ with $t\left(\tilde{I}\right) = 1 - \lambda \tilde{I}^{-\tau}$

- $\tilde{I}$ is income relative to the mean
- λ determines tax rate on the mean
- τ determines progressivity





Other taxes are linear:

- $\tau_l = 0.05$ approximates state and local taxes
- $\tau_k = 0.074$ approximates corporate income tax

Model Fit

The model replicates:

- cross-sectional earnings distribution
- distribution of federal income tax payments

Table 3: Shares of Tax Payments – Model and Data

Percentiles of Household Income	Data	Model
Quantile		
1st (bottom 20%)	0.3	0.4
2nd (20-40%)	2.2	2.5
3rd (40-60%)	6.9	5.7
4th (60-80%)	15.9	13.7
5th (80-100%)	74.6	77.8
Top		
10%	59.0	62.6
1%	22.7	25.2
Tax Revenue (% GDP)	10.1	11.2

Results

Experiment: Fix λ and vary τ.

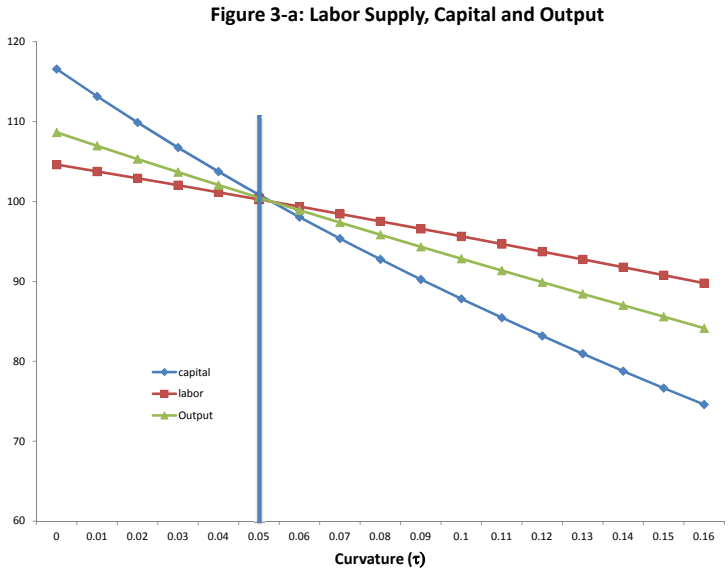
Table 4: Changes in Progressivity

	$\tau = 0$	$\tau = 0.04$	$\tau = 0.08$	$\tau = 0.10$	$\tau = 0.13$	$\tau = 0.16$
Output	108.7	102.1	95.8	92.8	88.4	84.2
Hours	104.2	101.1	97.7	95.9	93.0	90.1
Labor Supply	104.6	101.2	97.5	95.6	92.8	89.8
Capital	116.6	103.7	92.8	87.8	81.0	74.6
Revenues						
Federal Income Tax	82.1	96.7	104.9	107.0	108.4	107.7
Corporate Income Tax	104.7	101.2	97.3	95.3	92.1	88.9
State and Local Taxes	107.7	101.9	96.2	93.4	89.3	85.3
All Taxes	91.3	98.5	101.8	102.2	101.6	99.8

Main point:

- large losses in output
- small gains in revenues

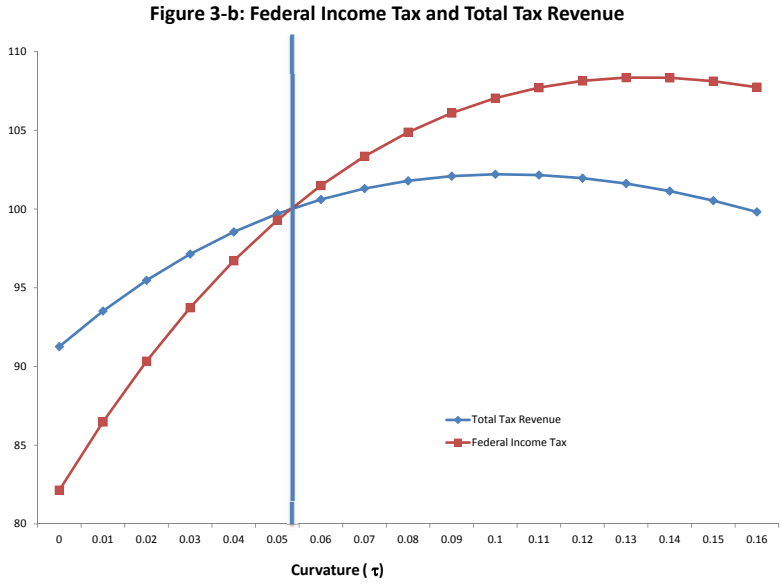
Effects of Changing Progressivity



Labor supply falls uniformly across rich and poor households.

Wealth concentration declines.

Effects of Changing Progessivity



Robust against small changes in labor supply elasticity.

Is This Plausible?

$\tau = 0.13$ is the progressivity parameter that maximizes federal revenue.

At 10 time average income (about \$500k), it implies

- an average tax rate of 32%.
- a marginal tax rate of 41%.

This would imply that pre 1986 tax rates were way above the peak of the Laffer curve.

A simple **test** for the model:

At tax rates we observed in the 1950s and 60s (top marginal rates of 80%+), what would happen to labor supply and output?

Thoughts

Interesting: **The paper is entirely mechanical.**

- It takes the model of Huggett (1996) and sticks in a different tax schedule.
- Then it computes the equilibrium for alternatives "slopes" of that tax schedule.
- Anyone can write this kind of paper.
- But it makes sense as a first step.

How does it work?

When marginal taxes are higher:

- everybody works less
- the rich save less

Is it robust?

Labor supply elasticity is key

- surprise result: findings are robust when elasticity is changed
- how is this possible?
- how elastic is the labor supply of the rich?

Elasticity of saving is key

- log utility must matter (high elasticity of saving)
- why do the rich save?

More Evidence?

Is there direct evidence on the **elasticity of the tax base** when tax rates change?

- cross-country comparisons?
- marginal tax rates were very high in the 1950s and 60s in many countries
- why were investment rates not low during that time?

Possible project:

Bound the effects of super high tax rates using the evolution of U.S. labor supply and saving rates (no collapse during the high tax periods).

Taxing the Rich II: Krueger and Kindermann (2014)

Question:

Which *labor income* tax rate on the top 1% maximizes welfare?

Welfare:

Expected utility (behind the veil of ignorance) of the representative household (dynasty).

Result:

The optimal top tax rate is $> 90\%$.

It is also close to the revenue maximizing top tax rate.

Intuition:

Even if labor supply is highly elastic in general, it is not highly elastic for top earners.

The reason: high earnings are transitory.

High taxes provide **insurance**.

Model

Again, Huggett (1996) with modifications.

1. Households can be college or non-college eduated (an endowment)
2. Accidental bequests are redistributed (lump sum)
3. Linear tax rates on consumption and capital income.
4. Nonlinear tax rates on labor income.
5. Balanced social security budgets.
6. Government issues debt subject to a present value budget constraint

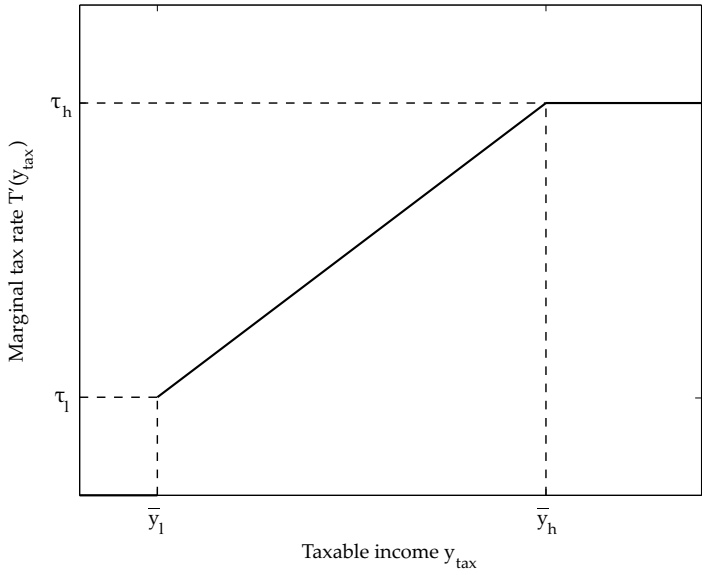
Calibration

Mostly standard.
Labor earnings:

- a small fraction of households receives a *transitory* superstar shock
- the other states are from PSID
- key: persistence of top state is 0.8

Labor Income Tax Schedule

Figure 1: Marginal Labor Income Tax Function



Model Fit

Model matches cross-sectional earnings and wealth distributions.

Table 7: Wealth Distribution in Benchmark Economy

	Share of total sample (in %)								
	Quintiles					Top (%)			
	1st	2nd	3rd	4th	5th	90-95	95-99	99-100	Gini
Model	0.0	0.8	4.1	11.6	83.6	14.6	23.3	31.8	0.810
US Data	-0.2	1.1	4.5	11.2	83.4	11.1	26.7	33.6	0.816

Policy Experiments

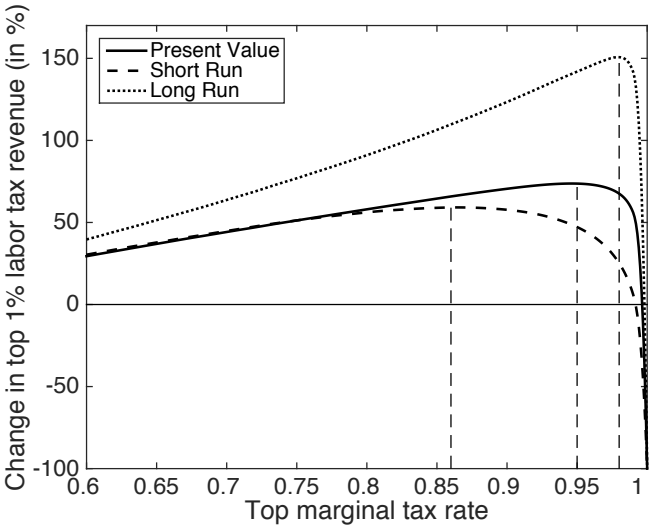
Vary τ_h.

Adjust τ_l and $\bar{y}_h$ so that government and social security budget constraints are satisfied.

Compute the transition path to new steady state.

Result 1: Laffer Curves

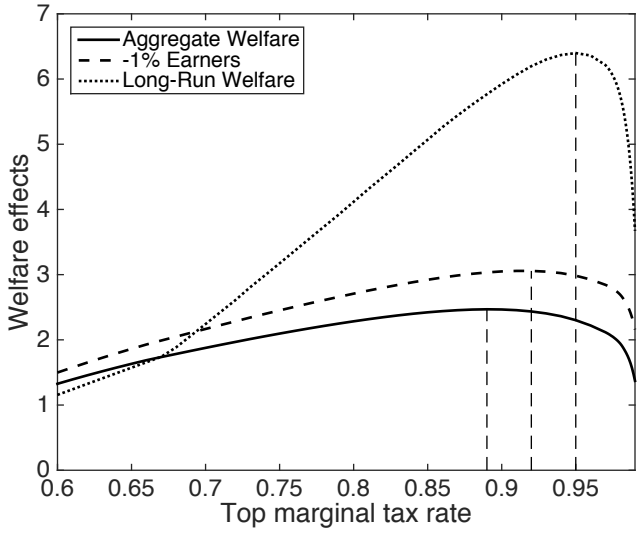
Figure 3: Laffer Curve of Labor Income Tax Receipts from Top 1%



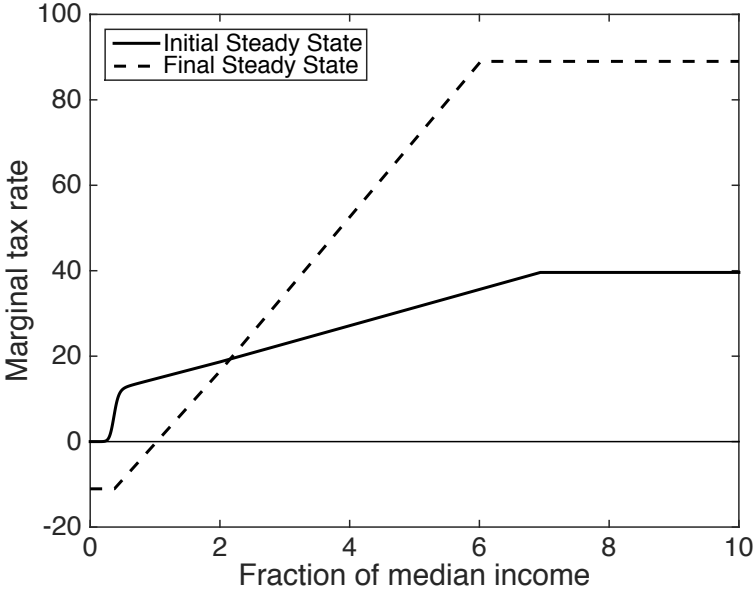
Higher top marginal tax rates massively increase tax payments of the rich.

Result 2: Welfare Maximization

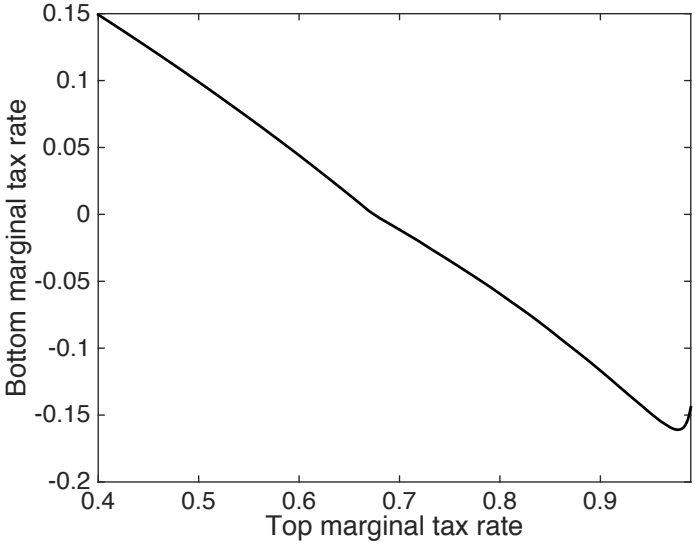
Figure 4: Three Aggregate Welfare Measures as Functions of τ_h



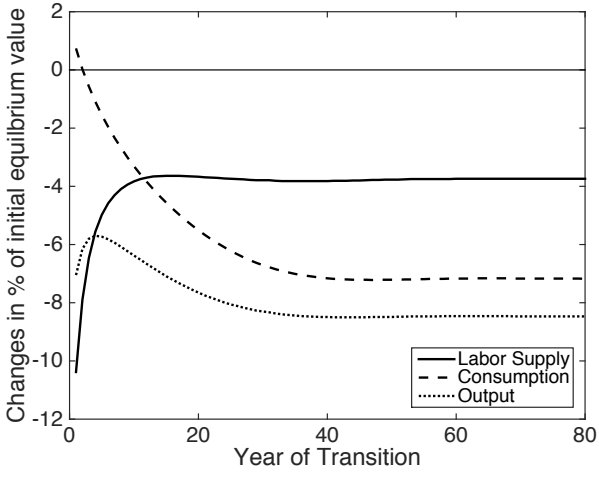
Optimal tax schedule



Taxes on the poor fall dramatically



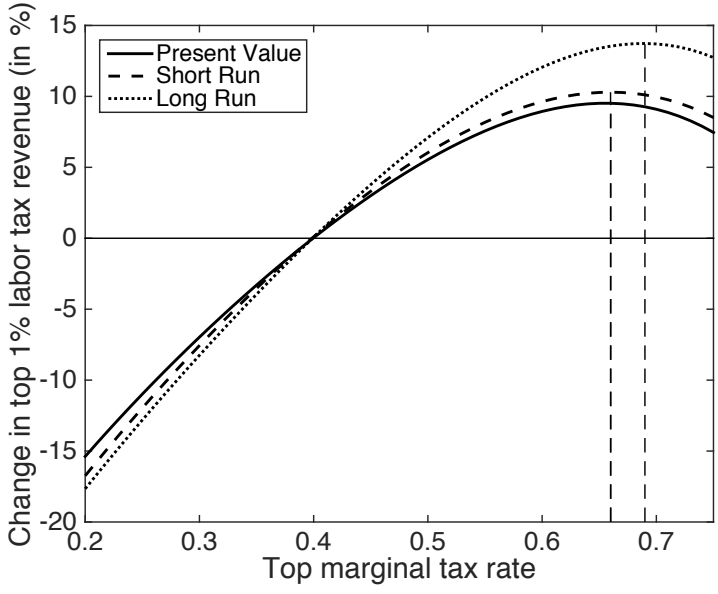
Large output losses



Robustness

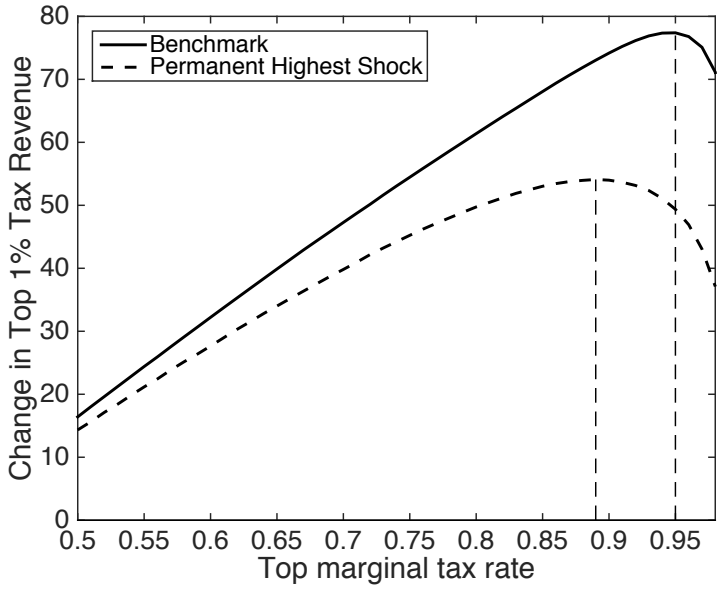
The transitory top income state is key.
Without it,

- the top tax rate is still 65%!
- but not much revenue is raised



Persistence of the top state is not key

Results with perfectly persistent top income state:



What is the intuition??

Why isn't labor supply super elastic for the high income state workers?

Perhaps the reason is that they must save for retirement (and the shock only hits at age 30)?

Thoughts

A surprising result (especially with the fully persistent high income state).

- why is the result different from Guner and Ventura (2014)?

This is another paper you could have written

- except that the transition path computation is complicated

The welfare criterion is contrived (to me).

Thoughts

Do these papers capture the margins that are central to the policy discussion?

Taxes may distort decisions that may lead to large **social rents**

- Examples: entrepreneurial activity, business startups, creating "good" jobs, innovation.
- Brüggemann (2015) does this in a fairly mechanical paper built on Cagetti and De Nardi (2009).
- Kitao (2008) is also a somewhat mechanical effort in a similar model.

Other Interesting Papers

Theories of the wage distribution:

- Guvenen and Kuruscu (2010); Huggett et al. (2011)
- Ben-Porath models of human capital investment
- Badel and Huggett (2014) study progressive taxes in that environment

Guvenen and Smith (2014)

- a sophisticated model where labor income risk is inferred from consumption choices

Papers on Redistribution

Saez et al. (2012): how much does the tax base respond to higher tax rates?
Cagetti and De Nardi (2009)

- estate taxation

Lockwood and Weinzierl (2012)

- taxation in a world of preference heterogeneity

Ales et al. (2014)

- optimal taxation in a model with a more interesting labor market

Brüggemann and Yoo (2015): progressive taxes in a Castaneda et al. (2003) model.

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