High Marginal Tax Rates on the Top 1%?

Lessons from a Life Cycle Model with Idiosyncratic Income Risk

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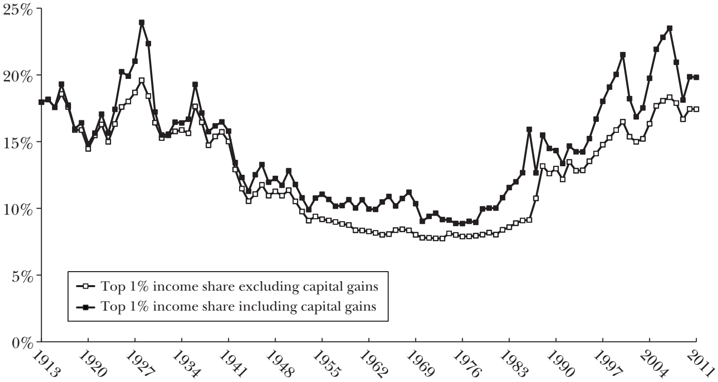
Motivation: Income Share of Top 1 % in the U.S.

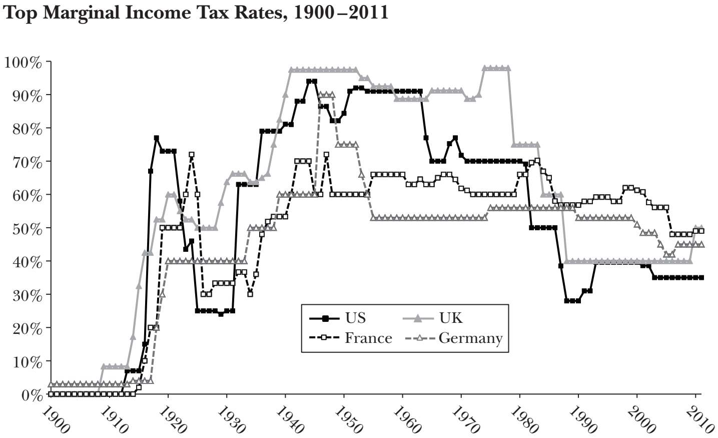
Top 1 Percent Income Share in the United States



Source: Source is Piketty and Saez (2003) and the World Top Incomes Database.

▸ More on the Top 1%

Motivation: Top Marginal Income Tax Rates



Source: Piketty and Saez (2013, figure 1).

Motivation

- Large secular increase in earnings, income and wealth inequality: increasing share of the "Top 1%"
- Popular and scientific calls for increasing marginal tax rates at the top, e.g. Diamond and Saez (2011), Reich (2010), Piketty (2014)

Motivation

- Large secular increase in earnings, income and wealth inequality: increasing share of the "Top 1%"
- Popular and scientific calls for increasing marginal tax rates at the top, e.g. Diamond and Saez (2011), Reich (2010), Piketty (2014)
- Scientific basis: Diamond/Saez (2011): Revenue maximizing top marginal tax rate above *fixed* income threshold $\bar{y}$:

$$\tau_h = \frac{1}{1 + a \cdot \epsilon}$$

  - $a = \frac{1}{1-1/(y_m/\bar{y})}$ measures thickness of tail of income distribution
  - ϵ: Average elasticity of earnings (in top bracket) w.r.t. net of tax rate $\epsilon = \frac{d\log(y)}{d\log(1-\tau)}$
- Generalization to dynamic models: Badel and Huggett (2016)
- Diamond/Saez estimates: $a = 1.5$ and $\epsilon = 0.25$
  $\rightarrow \tau_h = 0.73$ maximizes tax revenue from top 1% earnings

More on the Formula

Details of the Formula (relevant for this paper)

- Static model of labor supply. Labor productivity e distributed Pareto with tail parameter a_e in population.
- Constant marginal tax rate τ above threshold $\bar{y}$. Discard revenue.
- Peak of the Laffer curve if $\bar{y}$ is held fixed (alternatively, if share of population subject to top marginal rate -say top 1%- fixed):

$$\tau_h = \frac{1}{1 + a \cdot \epsilon} \quad \text{and} \quad \tau_h^{1\%} = \frac{1}{1+\epsilon}$$

where

$$\epsilon = \frac{1}{a} \cdot \epsilon_u + \left[1 - \frac{1}{a}\right] \cdot \epsilon_c$$

- Assume preferences given by

$$U(c,n) = \frac{c^{1-\gamma}}{1-\gamma} - \lambda \frac{n^{1+1/\chi}}{1+1/\chi}$$

Details of the Formula (continued)

- Suppose $\gamma = 0$: No income effects. Then $\epsilon_u = \epsilon_c = \chi, a = \frac{a_e}{1+\chi}$ and

$$\tau_h = \frac{1}{1 + a \cdot \chi} \quad \text{and} \quad \tau_h^{1\%} = \frac{1}{1+\chi},$$

- With income effects ($\gamma > 0$): Then $\epsilon_u = \frac{1-\gamma}{\gamma + 1/\chi}, \epsilon_c = \frac{1}{\gamma+1/\chi}$ and

$$\tau_h = \tau_h(\chi, \gamma, a_e) \quad \text{and} \quad \tau_h^{1\%} = \tau_h^{1\%}(\chi, \gamma, a_e)$$

- Basic upshots:
  - Exact tax experiment important: τ_h vs $\tau_h^{1\%}$.
  - (Obviously) Frisch labor supply elasticity χ important.
  - Size of the income effect (parameterized by γ) important.
  - Labor productivity process e at the top (through a_e) important.

Objective of this project

- Evaluate Diamond/Piketty/Saez recommendations in a (relatively standard) heterogeneous households macro model
- Key ingredients of the analysis:
    - Life cycle model with endogenous labor supply, savings decisions
    - Incomplete markets and general equilibrium
    - Ex ante and ex post heterogeneity: Redistribution vs. Insurance
    - Progressive tax schedule that adjusts to changes in τ_h
    - Maximization over tax-reform-induced transition paths:

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  - Maximization over tax-reform-induced transition paths:
    - Evolution of wealth distribution and factor prices over time
    - Welfare impact on transitional generations
- Key challenge: How to generate realistic earnings and wealth distribution at the top 1%?

  → We use rare but large labor productivity shocks not observed in survey data (Castaneda/Diaz-Gimenez/Rios-Rull, 2003)

More on Related Literature

Central Result I: Revenue Maximization

- Peak of Laffer curve from *top 1% earners* is at *higher* marginal tax rates ($\tau_h = 87\%$) than advocated by Diamond and Saez.

- Intuition:

  - Productivity realizations at the very top large, persistent (but not permanent)

  - Given calibrated preferences, individuals at the very top of productivity distribution maintain labor supply even at very high marginal tax rates

  $\Rightarrow$ Uncompensated elasticity of earnings w.r.t. tax rate is low at the top (strong income effects).

Central Result II: Welfare Maximization

- Revenue maximizing $\tau_h = 87\%$ rate is not welfare maximizing, but not that far off. Social welfare maximized at $\tau_h = 79\%$.
- Intuition: High tax progressivity
  - is detrimental for macro aggregates
    - lower capital stock
    - lower wages
  - hurts the top 1% who receive weight in social welfare function
  - but provides social insurance against never making it into Top 1%.

The Model: Overview

- Large-scale OLG model as in Auerbach and Kotlikoff (1987)
- Neoclassical production sector
- Life cycle structure with population growth, retirement age j_r, uncertain survival, terminal age J
- Consumption-savings, labor supply decisions s.t. idiosyncratic wage risk (Bewley, Huggett, Aiyagari, Imrohoroglu, Kaplan and Violante)
  - Wage is given by $e(j, s, \alpha, \eta)w$
  - Preferences

$$U(c, n) = \frac{c^{1-\gamma}}{1-\gamma} - \lambda \frac{n^{1+1/\chi}}{1+1/\chi}$$

- Benevolent government (values transitional generations)
  - Chooses optimal (within parametric class) progressive labor income tax reform τ_h, τ_l and required time path of government debt B_t.
  - Takes other elements of fiscal policy as fixed $\tau_c, \tau_k, \tau_{ss}$.

The Model

Households: Labor productivity

- Households are ex ante and ex post heterogeneous w.r.t. labor productivity
- Wage is given by $w \cdot e(j, s, \alpha, \eta)$:
  - Wage rate of the economy w
  - Deterministic education level $s \in \{n, c\}$ determined at birth
  - Deterministic age component $\epsilon_{j,s}$
  - Fixed effect α determined at birth
  - Stochastic component η following education specific Markov chain with states $\eta \in \mathcal{E}_s$ and transition matrix $\pi_s(\eta, \eta')$.

The Model

Households: Decision making

- At each point in time households choose
  - consumption c
  - labor supply n and thus earnings $y = w \cdot e \cdot n$
  - savings in the risk free asset a at return $r_n = r(1 - \tau_k)$ and with tight borrowing constraint
- Preferences

$$U(c, n) = \frac{c^{1-\gamma}}{1-\gamma} - \lambda \frac{n^{1+1/\chi}}{1+1/\chi}$$

The Model

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- Dynamic optimization problem:

$$v(j, s, \alpha, \eta, a) = \max_{c,n,a' \geq 0} U(c, n) + \beta \psi_{j+1} \sum_{\eta'} \pi_s(\eta'|\eta) v(j+1, s, \alpha, \eta', a')$$

$$(1 + \tau_c)c + a' + T(y) + T_{ss}(y) = (1 + r_n)a + b(j, s, \alpha, \eta) + y$$

The Model

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$$(1+\tau_c)c + a' + T(y) + T_{ss}(y) = (1+r_n)a + b(j,s,\alpha,\eta) + y$$

The Model

Government

- Collects revenue from
  - consumption taxes τ_c
  - flat capital income tax τ_k
  - *progressive labor earnings tax* $T(\cdot)$
- Finances exogenous expenditure stream G
- Chooses time path of debt B_t
- Runs a PAYG progressive social security system
- Budget constraint

$$\begin{aligned} & r\tau_k \int a'(.)d\Phi + \tau_c \int c(.)d\Phi + \int T(we(j,s,\alpha,\eta)n(.))d\Phi \\ = \quad & G + (r-n)B \end{aligned}$$

Definition of Recursive Competitive Equilibrium

Given G,, B, tax system (τ_c, τ_k, T) and social security system $(\tau_{ss}, \bar{y}_{ss})$, a stationary recursive competitive equilibrium is value and policy functions (v, c, n, a') for the household, optimal input choices (K, L) of firms, prices (r, w) and an invariant probability measure Φ such that

- Given prices (r, w) and government policies $(\tau_c, \tau_k, T, \tau_{ss}, \bar{y}_{ss})$, the value function v satisfies the Bellman equation and (c, n, a') are the associated policy functions.
- Given prices (r, w), the optimal choices of the representative firm satisfy

$$
\begin{aligned}
r &= \Omega\epsilon \cdot \left[\frac{L}{K}\right]^{1-\epsilon} - \delta_k \\
w &= \Omega(1-\epsilon)\left[\frac{K}{L}\right]^{\epsilon}.
\end{aligned}
$$

- Government policies satisfy the government budget constraints.

Definition of Recursive Competitive Equilibrium (cont.)

- Market clearing:
  - The labor market clears:

$$L = \int e(j,s,\alpha,\eta)n(j,s,\alpha,\eta,a)d\Phi$$

  - The capital market clears

$$(1+n)(K+B) = \int a'(j,s,\alpha,\eta,a)d\Phi$$

  - The goods market clears

$$Y = \int c(j,s,\alpha,\eta,a)d\Phi + (n+\delta)K + G$$

- The invariant probability measure Φ is consistent with the population structure of the economy, with the exogenous processes π_s, and the household policy function $a'(.)$.

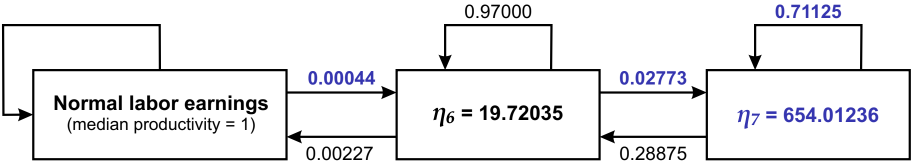
Calibration of Initial Equilibrium: Overview

- Standard calibration for household demographics, preferences and technology parameters. Key parameters ($\gamma = 1.5, \chi = 0.6$)
- Exception: $e(j, s, \alpha, \eta)$ process. Want realistic earnings and wealth distribution.
- Goal: realistic earnings and wealth distribution
- Procedure to determine $w \cdot e(j, s, \alpha, \eta)$
  - Choose aggregate TFP such that $w = 1$
  - Use $\varepsilon_{j,s}$ and α estimates from PSID
  - Estimate baseline Markov chain $\{\eta_{s,1}, \ldots, \eta_{s,5}\}$ from PSID
    $\rightarrow$ normal labor earnings (roughly bottom 99%)
  - Augment with very high earnings realizations $\{\eta_{s,6}, \eta_{s,7}\}$
    $\rightarrow$ follows Castaneda/Diaz-Jimenez/Rios-Rull (JPE, 2003)

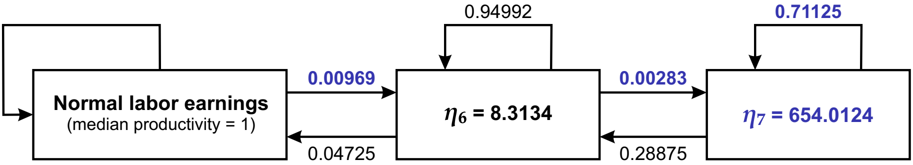
Details on baseline wage process

Calibration: High Earnings Realizations

No college education



College education



Ballpark numbers: If median income is \$50,000, average income of η_6 people is \$450,000, of η_7 people \$20,000,000 (population share 0.036%).

Exogenously Calibrated Parameters

Parameter	Value/Target
Survival probabilities $\{\psi_j\}$	HMD 2010
Population growth rate n	1.1%
Capital share in production ϵ	33%
Threshold positive taxation $\bar{y}_l$	35% of y^{med}
Top tax bracket $\bar{y}_h$	400% of $\bar{y}$
Top marginal tax rate τ_h	39.6%
Consumption tax rate τ_c	5%
Capital income tax τ_k	28.3%
Government debt to GDP B/Y	60%
Government consumption to GDP G/Y	17%
Bend points b_1, b_2	$0.184, 1.114$
Replacement rates r_1, r_2, r_3	$90\%, 32\%, 15\%$
Pension Cap $\bar{y}_{ss}$	200%
Inverse of Frisch elasticity χ	0.6

Other Endogenously Calibrated Parameters

Parameter	Value	Target/Data
Technology level Ω	0.922	$w = 1$
Depreciation rate δ_k	7.6%	$r = 4\%$
Initial marginal tax rate τ_l	12.2%	Budget balance
Time discount factor β	0.977	$K/Y = 2.88$
Disutility from labor λ	36	$\bar{n} = 33\%$
Coeff. of Relative Risk Aversion γ	1.5	$\epsilon = 0.25$

- Model-implied average tax elasticity of earnings in top 1% is $e = 0.25$, same as assumed by Diamond and Saez (2011).

Macroeconomic Aggregates in Benchmark Economy

Variable	Value
Capital	289%
Government debt	60%
Consumption	58%
Investment	25%
Government Consumption	17%
Av. hours worked (in %)	33%
Interest rate (in %)	4%
Tax revenues	
- Consumption	2.9%
- Labor	11.9%
- Capital income	4.0%
Pension System	
Contribution rate (in %)	12.5%
Total pension payments	5.1%

Earnings and Wealth Distribution

Model and Data

The Labor Earnings Distribution

	Quintiles					Top (%)			Gini
	1st	2nd	3rd	4th	5th	90-95	95-99	99-100	
Model	0.0	5.6	10.9	17.2	66.3	10.9	18.9	22.8	0.649
US Data	-0.1	4.2	11.7	20.8	63.5	11.7	16.6	18.7	0.636

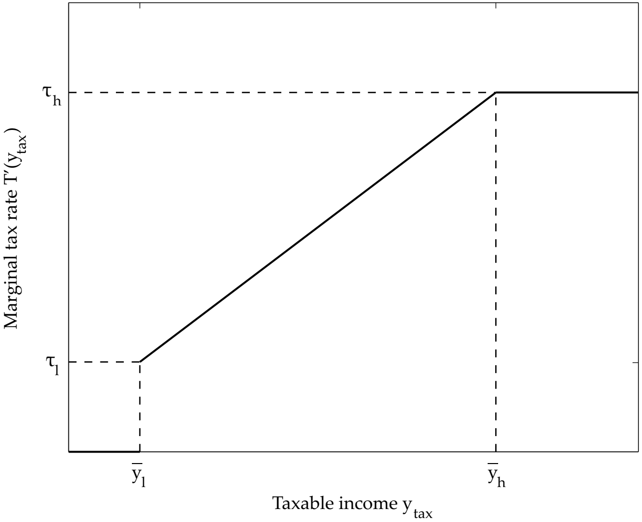
The Wealth Distribution

	Quintiles					Top (%)			Gini
	1st	2nd	3rd	4th	5th	90-95	95-99	99-100	
Model	0.0	0.9	4.2	11.5	83.4	14.1	25.3	30.6	0.809
US Data	-0.2	1.1	4.5	11.2	83.4	11.1	26.7	33.6	0.816

Thought Experiment: Tax Reform-Induced Transition

- Start from initial steady state with (crude approximation of) current US tax system and earnings and wealth distribution
- Unexpected one time change in tax policy
  - Set $\bar{y}_h$ to the top 1% labor earnings threshold
  - Change in top marginal tax rate τ_h
- Reform $(\bar{y}_h, \tau_h)$ induces transition path to new long-run equilibrium
- Government budget balance:
  - Set τ_l to balance intertemporal budget
  - Sequence of government debt balances sequential budgets

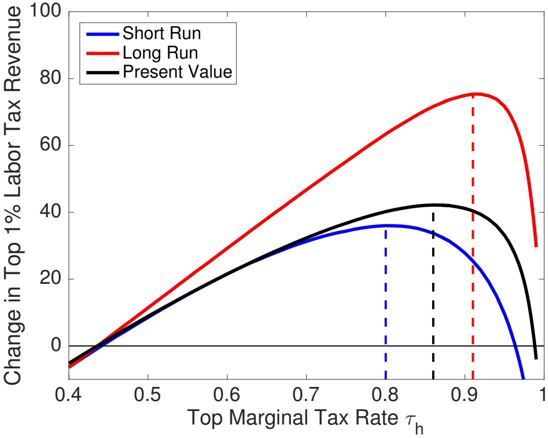
Thought Experiment: Tax Reform-Induced Transition



Initial equilibrium: $\bar{y}_l = 0.35 \cdot y^{\text{med}}, \quad \tau_l = 11.1\%$

$\bar{y}_h = 4.0 \cdot y^{\text{aver}}, \quad \tau_h = 39.6\%$

The Top 1% Laffer curve



- Peak of NPV Laffer curve at 87%.
- Policy reform reduces wealth at top drastically along transition.
- Labor supply at top even less elastic to τ_h in long run.

Linking results to Diamond/Saez: Saez (2001) Formula

Revenue maximizing marginal tax rate above a threshold y^*

$$\tau_h = \frac{1}{1 + \underbrace{a \cdot \epsilon_c}_{\text{Subst. effect}} - \underbrace{(\epsilon_c - \epsilon_u)}_{\text{Inc. effect}}}$$

In the model, at benchmark τ_h and peak τ_h

- Pareto distribution parameter $a = 1.80 \Rightarrow a = 1.18$
- Average compensated tax rate elasticity $\epsilon_c = 0.41 \Rightarrow \epsilon_c = 0.43$
- Strong income effect $\epsilon_c - \epsilon_u = 0.31 \Rightarrow \epsilon_c - \epsilon_u = 0.32$

$\Rightarrow$ According to formula: Top 1% rate: $\tau_h = 70\%$ vs. peak $\tau_h = 84\%$

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$\Rightarrow$ According to formula: Top 1% rate: $\tau_h = 70\%$ vs. peak $\tau_h = 84\%$

Note: formula works well for right inputs. But $a, \epsilon_c, \epsilon_u$ not policy invariant

The Welfare-Maximizing Top 1% Tax Rate

Measuring Social Welfare

- Current generations

$$v_1\big(j, s, \alpha, \eta, a + \Psi_1(j, s, \alpha, \eta, a)\big) = v_0\big(j, s, \alpha, \eta, a\big)$$

- Future generations

$$Ev_t\big(1, s, \alpha, \bar{\eta}, +\Psi_t\big) = Ev_0\big(1, s, \alpha, \bar{\eta}, 0\big)$$

- Total transfers

$$W = \int \Psi_1(j, s, \alpha, \eta, a)\ d\Phi_1 + \sum_{t=1}^{\infty} \left(\frac{1+n}{1+r_0}\right)^t \Psi_t$$

- Optimal tax system minimizes W

The Welfare-Maximizing Top 1% Tax Rate

- Fehr/Kindermann (2014) show that to a first order approximation (of the value function) this is equivalent to maximizing

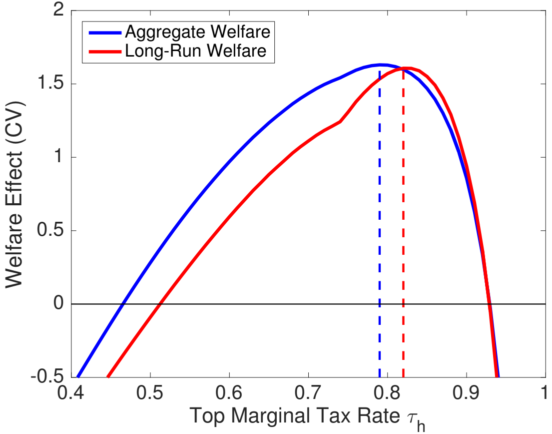
$$W = \int \lambda(j,s,\alpha,\eta,a) \cdot v_1(j,s,\alpha,\eta,a)\; d\Phi_1 + \sum_{t=1}^{\infty} \left(\frac{1+n}{1+r_0}\right)^t \lambda_t \cdot Ev_t\big(1,s,\alpha,\bar{\eta},0\big)$$

with

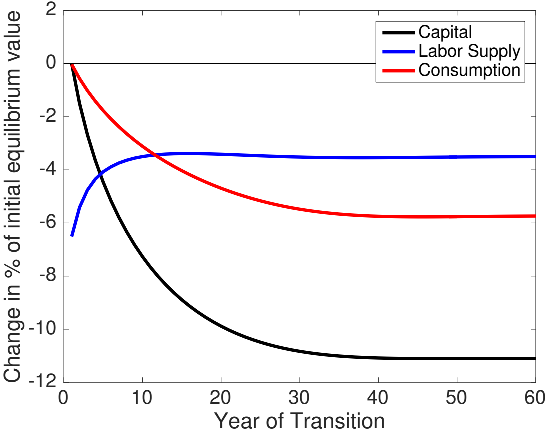
$$\lambda(j,s,\alpha,\eta,a) = U_c\big[c_1(j,s,\alpha,\eta,a), n_1(j,s,\alpha,\eta,a)\big]^{-1} \quad \text{and}$$

$$\lambda_t = E\Big[U_c\big[c_t(1,s,\alpha,\bar{\eta},0), n_t(1,s,\alpha,\bar{\eta},0)\big]\Big]^{-1}$$

The Welfare-Maximizing Top 1% Tax Rate

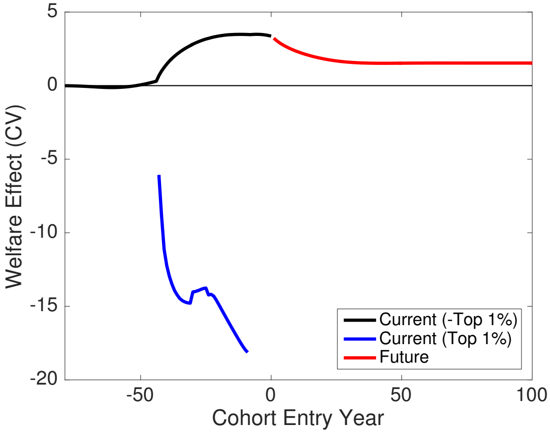


Results: Transitional Dynamics



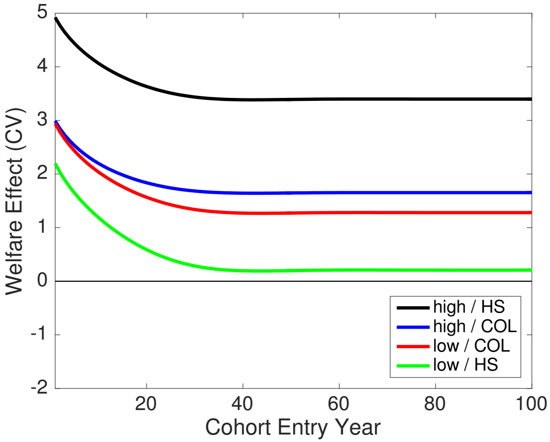
▸ Further results

Distribution of Welfare Gains

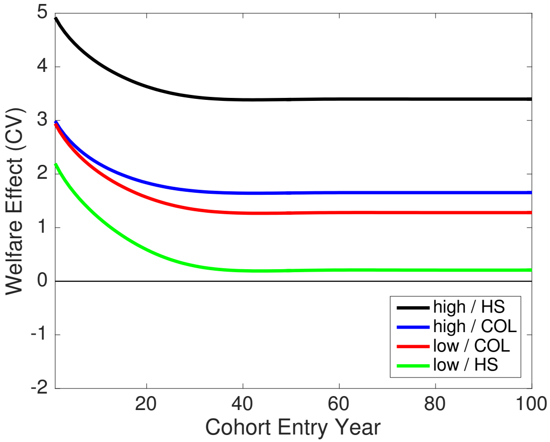


- Welfare gains for future cohorts: Ex ante redistribution or Ex post insurance? Mainly better ex post insurance!

Results: Ex ante redistribution?



Results: Ex ante redistribution?



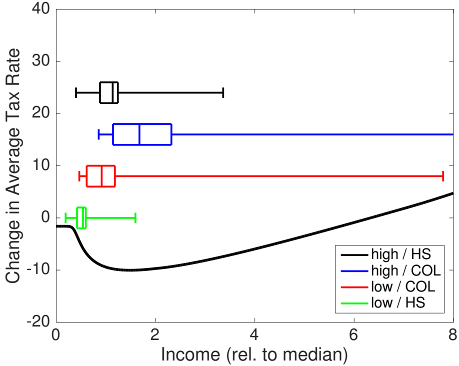
- Why are the low skilled ($s = n$)/high α so much better off?
- Why are the low skilled ($s = n$)/low α only marginally better off?

Results: Ex ante redistribution?

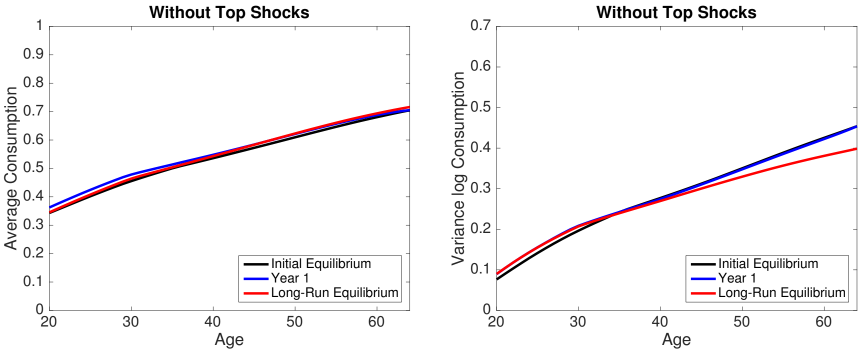
Mostly because

- Reduction in average tax rates is highest in the middle of the earnings distribution, not at the very bottom
- Aggregate wages fall substantially (in medium/long run)
- Also: lower skilled have the lower probability to climb up to the high income region

Results: Ex ante redistribution?

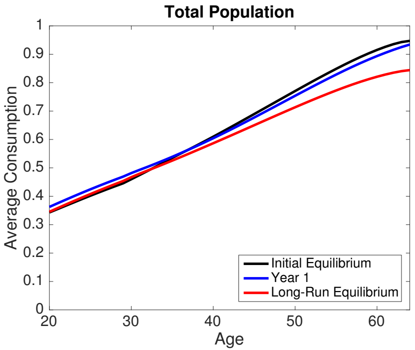


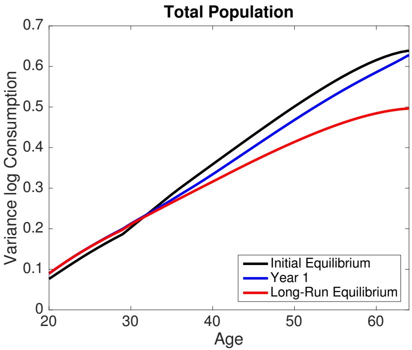
Better ex post insurance!



- For the bottom 99%, mean consumption increases, variance of consumption declines, with tax reform ...
- ...despite the fact that aggregate consumption falls by 7%.

Better ex post insurance!





- Consumption of top 1% takes the entire hit.
- Matters for aggregate welfare, but not all that much.

Sensitivity Analysis

- High Earnings Dispersion is Key for Optimal Tax Result
  - Version of model without high earnings realizations (no η_6, η_7).
  - Earnings and wealth distribution grossly counterfactual at top 1%.
  - Optimal top marginal tax rate approximately 35%.
- Preferences $U(c,n) = \frac{c^{1-\gamma}}{1-\gamma} - \lambda \frac{n^{1+1/\chi}}{1+1/\chi}$
  - Frisch elasticity χ has only moderate impact on the results
  - Importance of size of income effect as parameterized by γ

Variable	$\gamma = 2$	$\gamma = 1.5$
e_c	0.38	0.41
e_u	0.01	0.10
Peak Laffer NPV	95%	87%
Peak Laffer $t = \infty$	98%	91%
Welfare Max	89%	79%
Welfare Max SS	95%	82%

To Sum Up...

- Life cycle general equilibrium model with realistic earnings and wealth inequality
- Peak of Laffer curve for top 1% earners at higher rates than projected by Diamond/Saez ($\tau_h = 87\%$)
  - persistent and very high productivity shocks
  - income effects important at the very top
- Very high marginal tax rate on top 1% labor earnings ($\tau_h = 79\%$) is optimal in terms of aggregate welfare
  - detrimental to macro aggregates
  - but strong welfare gains from ex post insurance

What is Next?

- Potentially (VERY?) problematic assumption 1: labor productivity process invariant to tax system
  - human capital accumulation (Krueger and Ludwig 2016, Badel and Huggett 2016)
  - entrepreneurial activity (Cagetti/de Nardi 2007, Brüggemann 2016)
- Potentially (VERY?) problematic assumption 2: Closed economy? How elastic are the location decisions of the "super stars"? (Akcigit, Baslandze and Stantcheva 2016)
- Administrative data can give quantitatively crucial insights into
  - who the top 1% actually are and
  - how long they stay up there.

THANK YOU FOR COMING AND LISTENING!

Sensitivity Analysis

Variable	$\gamma = 2.0$	$\gamma = 1.5$	$\gamma = 1.0$
e_c	0.38	0.41	0.46
e_u	0.01	0.10	0.22
Peak Laffer NPV	95%	87%	79%
Peak Laffer $t = \infty$	98%	91%	84%
Welfare Max	89%	79%	64%
Welfare Max SS	95%	82%	69%

- Not only peak of Laffer curve at lower rate, also lesser additional revenues from increasing τ_h

Calibration of initial equilibrium

Wage process

- The baseline wage process

$$\log e(j, s, \alpha, \eta) = \alpha_s + \varepsilon_{j,s} + \eta_{j,s}$$

with

$$\eta_{j,s} = \rho_s \eta_{j-1,s} + \nu_{j,s} \qquad \nu_{j,s} \sim N(0, \sigma^2_{\nu,s}).$$

- Estimates from PSID

	ρ_s	σ^2_ν	σ^2_α	ϕ_s
$s = n$	0.9850	0.0346	0.2061	0.59
$s = c$	0.9850	0.0180	0.1517	0.41

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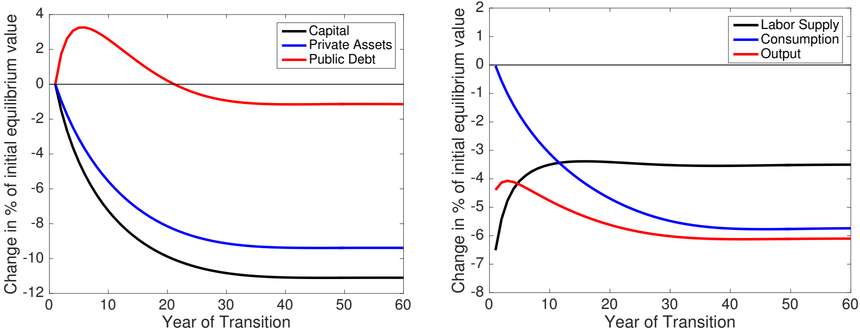
Results

Transitional Dynamics: Macroeconomic Aggregates



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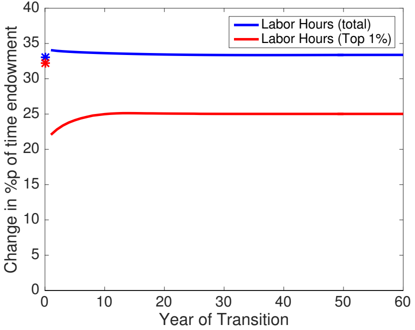
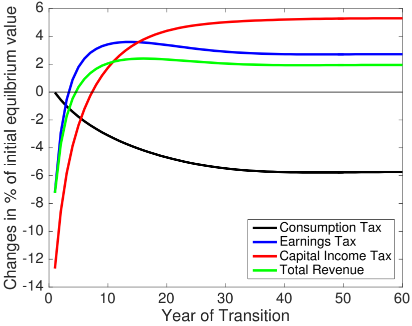
Results

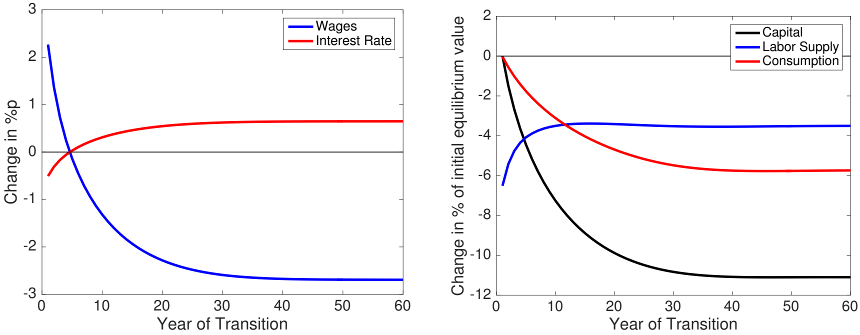
Transitional Dynamics: Hours and Tax Revenues





Results

Transitional Dynamics: Wages, Interest Rates



More on the Formula

- Diamond/Saez (2011): Revenue maximizing top marginal tax rate:

$$\tau_h = \frac{1}{1 + a \cdot e}$$

- Why might the formula potentially be wrong/misleading/not useful?

  1. a, e are not constants, but depend on policy: $a(\tau_h), e(\tau_h)$. Fixed point problem!
  2. Formula only applies to *very specific* tax experiment that leaves remainder of tax code completely unchanged.
  3. It does not apply to dynamic general equilibrium models.

- Note: Badel and Huggett (2016) develop generalized formula that tackles problem 3 (but not items 1 and 2).

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Related Literature (selective and likely incomplete)

- Empirical motivation: top income shares and taxes: Piketty and Saez (2003, 2011), Alvavedo et al. (2013), Akcigit, Baslandze and Stantcheva (2016)
- Static optimal tax literature: Mirrlees (1971), Diamond (1998), Saez (2001), Piketty, Saez and Stantcheva (2014); Diamond and Saez (2011)
- Laffer curve and tax progressivity in dynamic quantitative macro models: Trabandt and Uhlig (2011), Fehr and Kindermann, Holter et al. (2016), Guner et al. (2016), Badel and Huggett (2016)
- Optimal Progressive Income Taxation: Conesa and Krueger (2006), Bruggemann (2016)

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More on the Top 1%

- Household income of 389,436 in 2013 to make it into Top 1%
- Top 1% earned 19% of all AGI, paid 35% of federal income taxes.
- Having (reporting?) top incomes is transitory: between 1999 and 2007, of those reporting income of 1 Mill. or more
  - Only 50% did so for one year
  - 2/3 did so for one or two year
  - Only approx. 10% for all years
- What do they do (Bakija et al.2012)? Of top 0.1% income earners:
  - 60% executives, managers, supervisors, and financial professionals
  - Small but important minority at the very top are sports/entertainment stars and entrepreneurs
  - Almost 50% of earned income of this group from pass-through entities (sole proprietorships, partnerships, S-corps)

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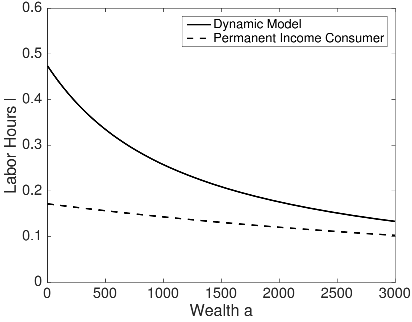
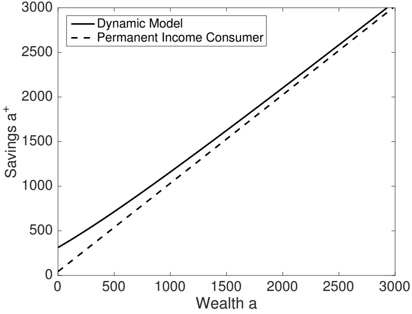
More on the Top 1% in the Model

- η_7 shock is large, persistent, but strongly mean reverting.
- Relative to model with permanently high productivity (or static model), superstars (for given level of wealth):
  - Work more (and respond less to increases in marginal tax rate)
  - Save more and consume less

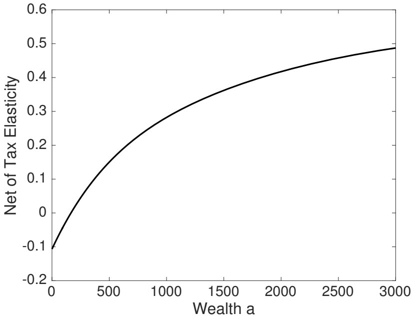
Policy Functions of Superstars

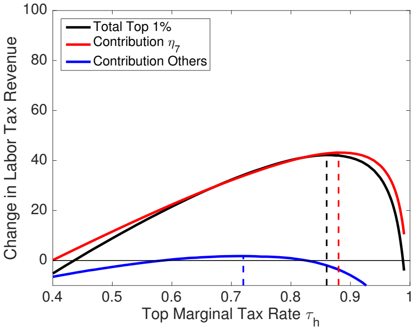
Our Model vs. Permanent Superstars: Hours and Asset Accumulation





Labor Supply Elasticity to Tax Changes of Superstars, Decomposition of Laffer Curve





Why Dynamics, Why Transition?

- Value of Dynamic Model
  - Importance of wealth accumulation for labor supply response, especially of high η individuals.
  - Laffer curve very different in long run since wealth distribution shifts to the left.
  - Factor price response qualitatively different than in static model (w down rather than up).
- Importance of Transitional Dynamics
  - For $t = 1$ Laffer curve similar to that static model. Steady state overstates revenue maximizing τ_h.
  - Factor price response differs in short run (w up), long run (w down).
  - Importance of transitional generations in social welfare. Steady state overstates welfare maximizing τ_h.

Comparison of Static and Dynamic Model

	static				dynamic			
GE	no	no	no	no	no	no	yes	yes
Wealth	no	no	no	yes	yes	yes	yes	yes
γ	0.00	0.78	0.78	0.87	1.50	1.50	1.50	1.50
					$t=1$	$t=\infty$	$t=1$	$t=\infty$
a_0	2.14	1.77	1.77	1.68	1.80	1.80	1.80	1.80
e_c	0.24	0.41	0.41	0.42	0.41	0.33	0.41	0.33
e_u	0.24	0.11	0.11	0.12	0.10	-0.12	0.10	-0.12
e_0	0.24	0.24	0.24	0.24	0.24	0.08	0.24	0.08
τ_0^{LF}	*0.66*	*0.70*	*0.70*	*0.71*	*0.70*	*0.87*	*0.70*	*0.87*
a	1.35	1.04	1.04	1.14	1.33	1.04	1.30	1.05
e_c	0.24	0.40	0.40	0.42	0.46	0.41	0.46	0.39
e_u	0.24	0.13	0.10	0.17	0.22	0.03	0.22	-0.01
e	0.24	0.14	0.11	0.20	0.28	0.05	0.28	0.01
τ^{LF}	*0.76*	*0.87*	*0.89*	*0.81*	*0.73*	*0.95*	*0.73*	*0.99*
$\tau_{\mathrm{sim}}^{\mathrm{LF}}$	*0.76*	*0.87*	*0.85*	*0.82*	*0.78*	*0.94*	*0.80*	*0.91*