Income Concentration and Its Optimal Taxation

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Plan of talk

1. Top Incomes in the Long Run

2. Current Situation in Germany

3. Theory of Optimal Top Tax Rates

4. Application to German Income Tax

Data sources

- Surveys
  - Lack of data before 1960
  - Rich people not covered

Data sources

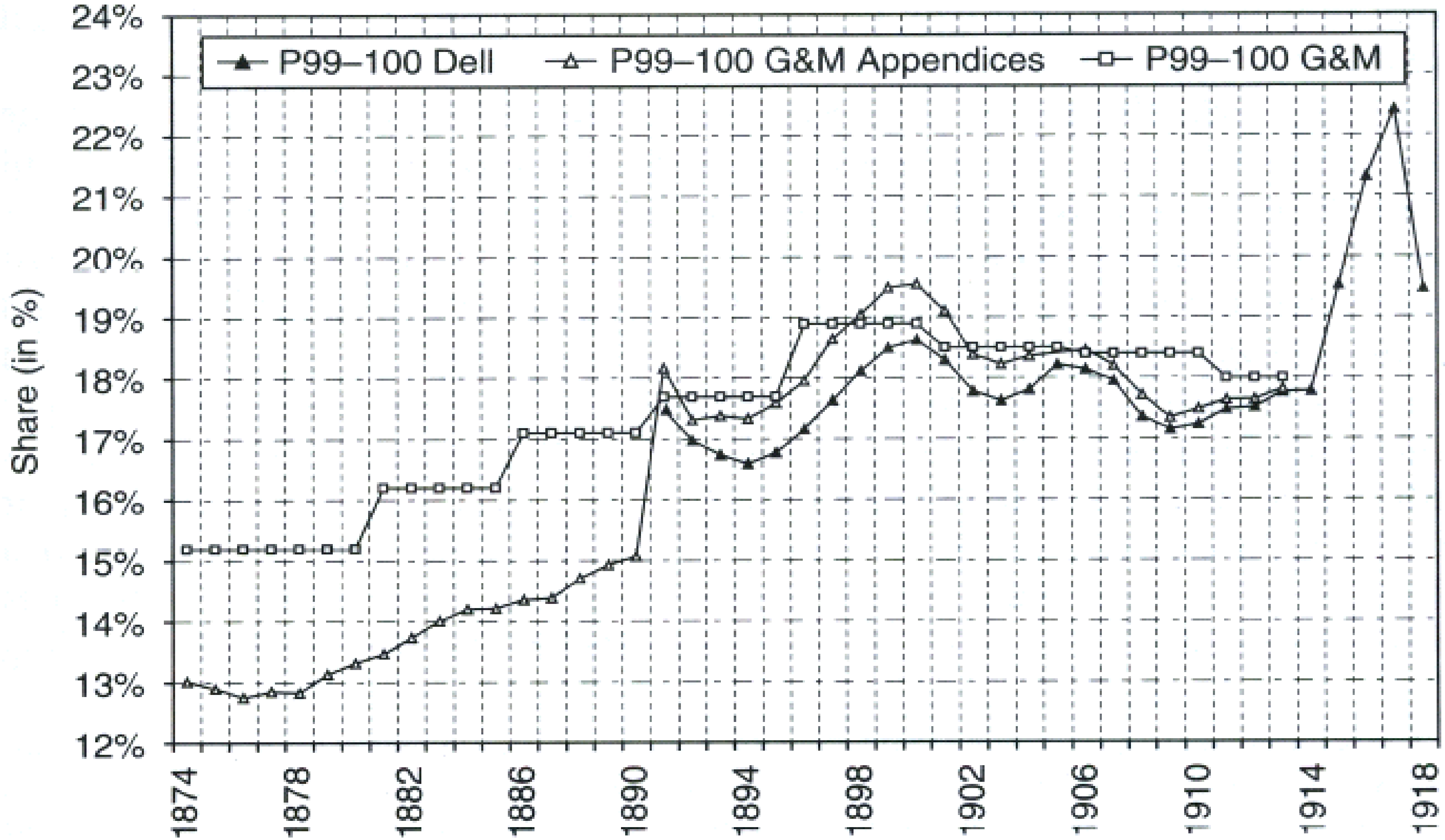
- Income Tax Statistics
  - Tabulated income distributions
  - Tax evasion
  - Definition of income
  - Definition of the income-receiving unit

1. Evolution over the XXth Century

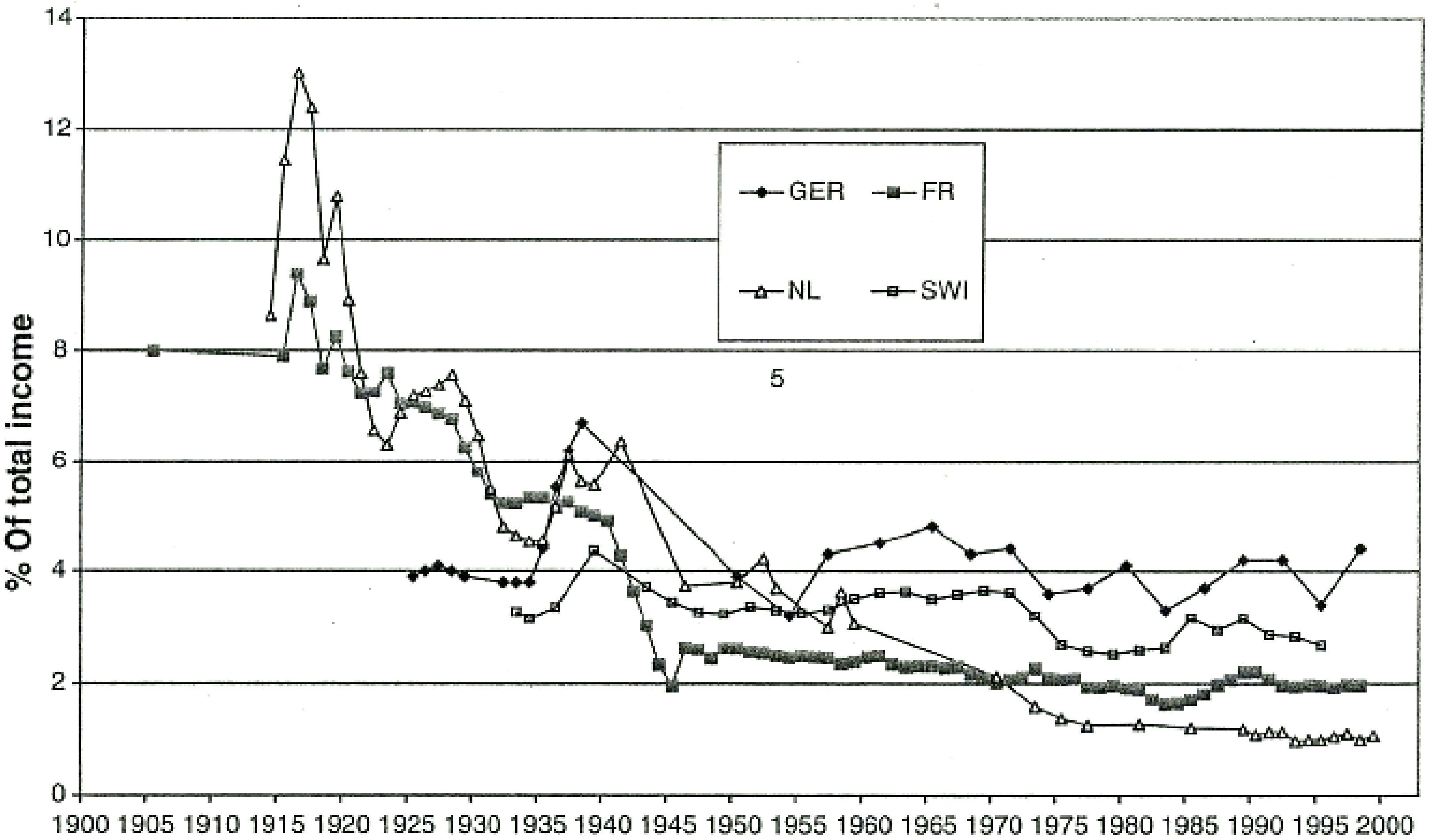
- 22 investigated countries: Argentina, Australia, Canada, China, Finland, France, Germany, India, Indonesia, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, UK, US.

- Main reference: Atkinson & Piketty (2007)

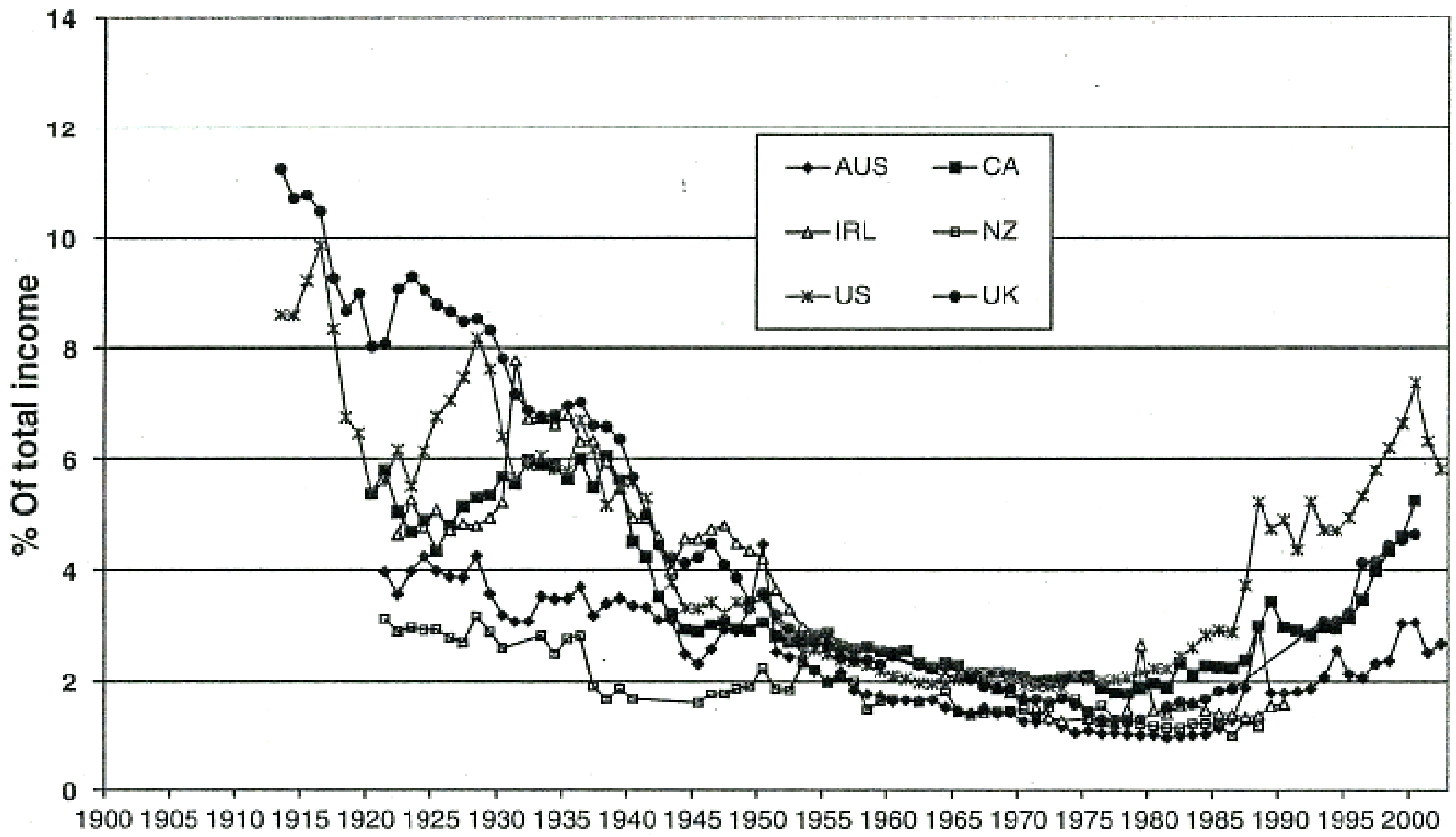
Share of top 1% in Prussia



The great impoverishment of the rich: Share of top 0.1%



The rich strike back: Share of top 0.1% in English-speaking countries



Explanations

- The great impoverishment of the rich: A capital-income phenomenon
  - Hyperinflation, Great Depression, Wars
  - Progressive taxation

Explanations

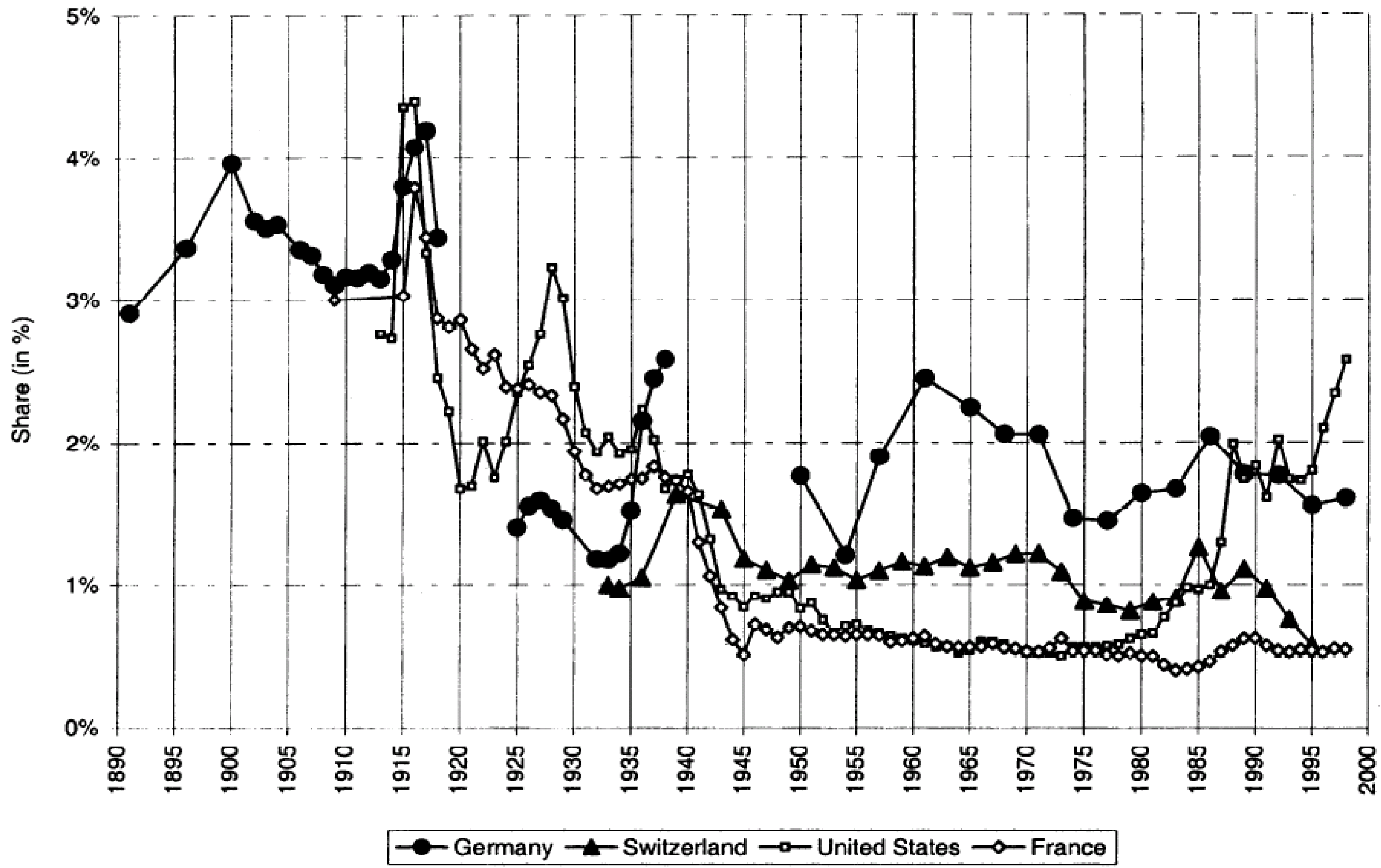
- The rich strike back: A wage-income phenomenon (?)
  - Global markets for superstars
  - Shareholder value
  - De-unionization
  - Lower top marginal tax rates
  - Financial development

2. Recent developments in Germany

- Historical background from Dell (2007)

- Period 1992 - 2003 from Bach, Corneo, and Steiner (2009)

Share of top 0.01%



- 1992-2003: ITR-SOEP integrated dataset
    - Data matching
    - Full coverage of taxpayers in the top percentile

Top personal real market incomes

Gross market income[1], capital gains excluded	1992	1995	1998	2001	2003	1995	1998	2001	2003
	1 000 Euro at 2000 prices[2]					1992 = 100			
Mean income	20.0	19.7	19.8	19.8	19.8	98.7	99.3	99.3	99.3
Median income	12.5	11.3	9.7	8.8	8.2	90.7	77.8	70.1	65.4
Average income									
Top 10%	77.9	77.0	80.7	83.1	82.1	98.8	103.6	106.7	105.4
Top 1%	224.2	210.2	229.5	240.4	222.5	93.7	102.3	107.2	99.2
Top 0.1%	836.0	761.5	867.4	920.4	816.5	91.1	103.7	110.1	97.7
Top 0.01%	3 246.6	3 065.8	3 614.6	3 850.9	3 567.4	94.4	111.3	118.6	109.9
Top 0.001%	11 064.6	11 721.3	14 267.5	15 161.2	16 223.9	105.9	128.9	137.0	146.6
Top 0.0001%	31 437.4	39 051.3	47 230.2	48 697.1	72 793.4	124.2	150.2	154.9	231.6
Lowest income									
Top 10%	46.8	46.9	48.7	49.6	50.8	100.1	103.9	105.8	108.4
Top 1%	103.9	101.5	107.4	111.4	109.0	97.7	103.4	107.3	105.0
Top 0.1%	340.7	312.2	337.9	352.7	316.4	91.6	99.2	103.5	92.9
Top 0.01%	1 397.8	1 211.5	1 384.2	1 478.8	1 227.2	86.7	99.0	105.8	87.8
Top 0.001%	5 501.6	5 257.7	6 175.9	6 558.0	5 576.8	95.6	112.3	119.2	101.4
Top 0.0001%	18 360.4	19 696.6	25 456.4	27 164.4	25 383.8	107.3	138.6	148.0	138.3

1) Income from business activity, wage income, capital income, exclusive public and private pensions; measured at the individual level.- 2) Deflated by consumer price index.

Source: ITR-SOEP data base.

3. Optimal tax rate for top incomes

- Continuum of households whose mass is normalized to unity
- Households are either single persons or couples; μ=share of couples
- Households differ according to their productivity ω, which is their private information
- Income of singles taxed according to $T(y)$; a couple with income y pays $2T(y/2)$
- Government sets a marginal tax rate τ for incomes larger than $\bar{y}$
- Utility functions defined on consumption and leisure, rewritten as $u(c,y)$ where c is consumption and $y= \omega l$ is earnings
- Rawlsian planner chooses τ

Behavior of top earners

Income tax paid by singles with $y \geq \bar{y}$ is $T(\bar{y}) + \tau(y - \bar{y})$; couples with $y \geq 2\bar{y}$ pay $2T(\bar{y}) + \tau(y - 2\bar{y})$.

Write consumption of singles as: $c = y(1 - \tau) + R$

where $R = \tau\bar{y} - T(\bar{y})$

Consumption of couples: $c = y(1 - \tau) + 2R$

Utility maximization yields earnings supply function $y_s(1 - \tau, R)$ for singles and $y_c(1 - \tau, 2R)$ for couples

Planner´s choice of τ

Implications of a small $d\tau$ for tax revenue:

- Mechanical effect:

$$M = [(1-\mu)(y_{mS} - \bar{y}) + \mu(y_{mC} - 2\bar{y})]d\tau$$

where y_{mS} is mean of incomes above $\bar{y}$ in the income distribution of singles and y_{mC} is the mean of incomes above $2\bar{y}$ in the income distribution of couples.

- Behavioral effect decomposed into two parts:

(i) Overall uncompensated increase $d\tau$ in the marginal tax rate starting from 0

(ii) Increase in virtual income equal to $dR = \bar{y}d\tau$ for singles and equal to $d2R = 2\bar{y}d\tau$ for couples

$$B_s = -\tau(\varepsilon_S^u\, y_{mS} - \eta_s \bar{y})\frac{d\tau}{1-\tau}$$

$\Longrightarrow$

$$B_c = -\tau(\varepsilon_C^u y_{mC} - 2\eta_c \bar{y})\frac{d\tau}{1-\tau}$$

where ε^u is the uncompensated labor supply elasticity and η captures the income effect as given by the Slutsky equation

From the optimality condition $M + B_S + B_C = 0$ one obtains

Propostion 1: *The optimal top marginal tax rate is implicitly given by:*

$$\frac{\tau}{1-\tau} = \frac{(1-\mu)(y_{mS} - \bar{y}) + \mu(y_{mC} - 2\bar{y})}{(1-\mu)(\varepsilon_S^u y_{mS} - \eta_s \bar{y}) + \mu(\varepsilon_C^u y_{mC} - 2\eta_c \bar{y})}$$

A simple special case

Assumptions:

- Top earnings are Pareto distributed, i.e. there exists $k \in (0, \bar{y}]$ such that

$$1 - F(y) = \left(\frac{y}{k}\right)^{-\alpha}$$

  where F is the cumulative distributive function and $y \geq k$

- $\varepsilon_S^u = \varepsilon_C^u = \varepsilon^u$

  $\eta_S = \eta_C = \eta$

  $\alpha_S = \alpha_C = \alpha$

Proposition 2: *Under the assumptions made, the optimal top marginal tax rate is*

$$\tau = \frac{1}{1 + \alpha\varepsilon^u - (\alpha - 1)\eta} = \frac{1}{1 + \varepsilon^u + (\alpha - 1)\varepsilon^c}$$

Taxation of consumption

Posit a consumption tax at rate *t* so that

$$c(1+t) = y - T(y).$$

Proposition 3: *In presence of a consumption tax, the optimal top marginal income tax rate is*

$$\tau_y = \tau - (1-\tau)t$$

4. Quantification for Germany

Formula:

$$\tau_y = \tau - (1-\tau)t \ ,$$

where

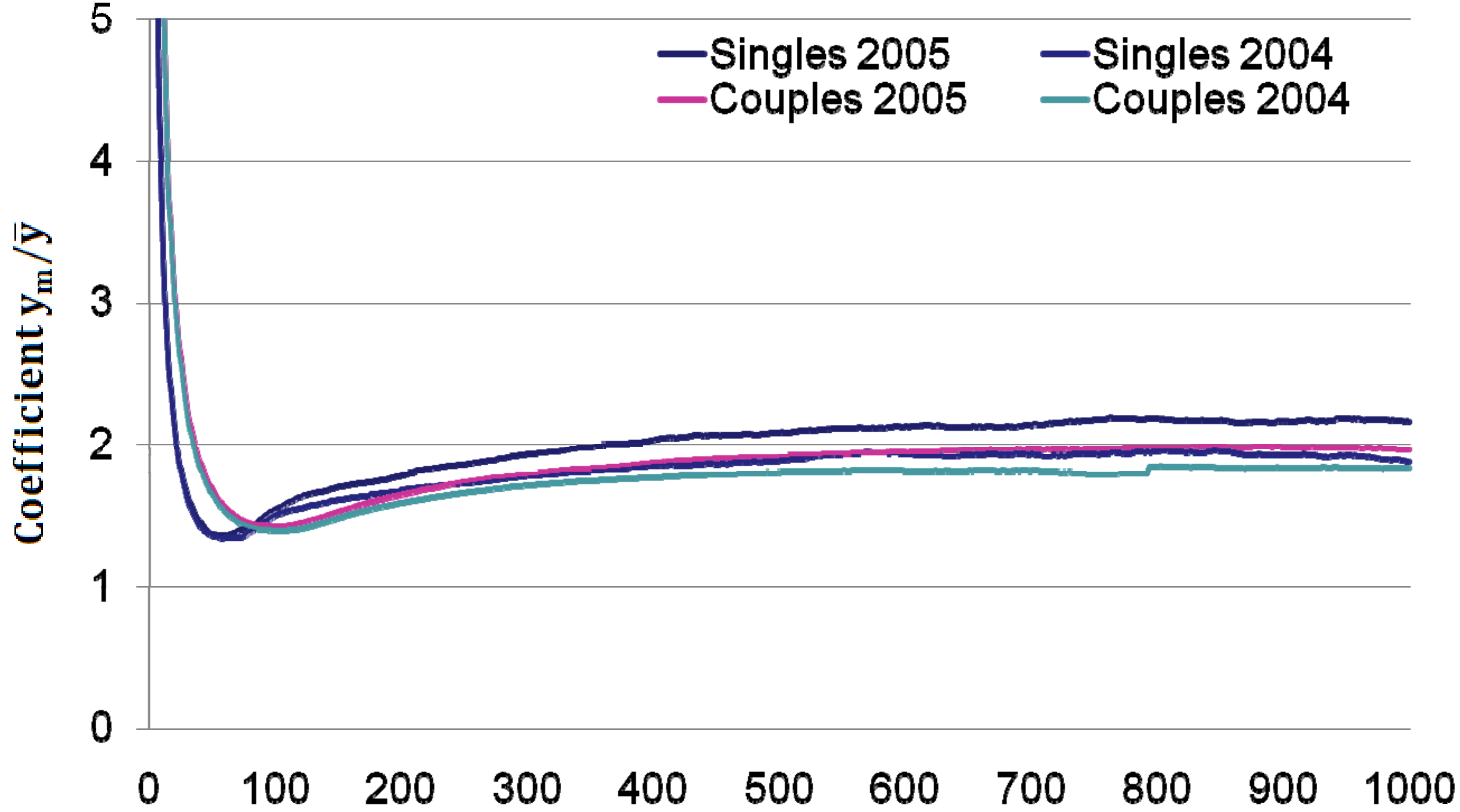
$$\frac{\tau}{1-\tau} = \frac{(1-\mu)(y_{mS} - \bar{y}) + \mu(y_{mC} - 2\bar{y})}{(1-\mu)(\varepsilon_s^u y_{mS} - \eta_s \bar{y}) + \mu(\varepsilon_C^u y_{mC} - 2\eta_c \bar{y})}$$

t = 0.19

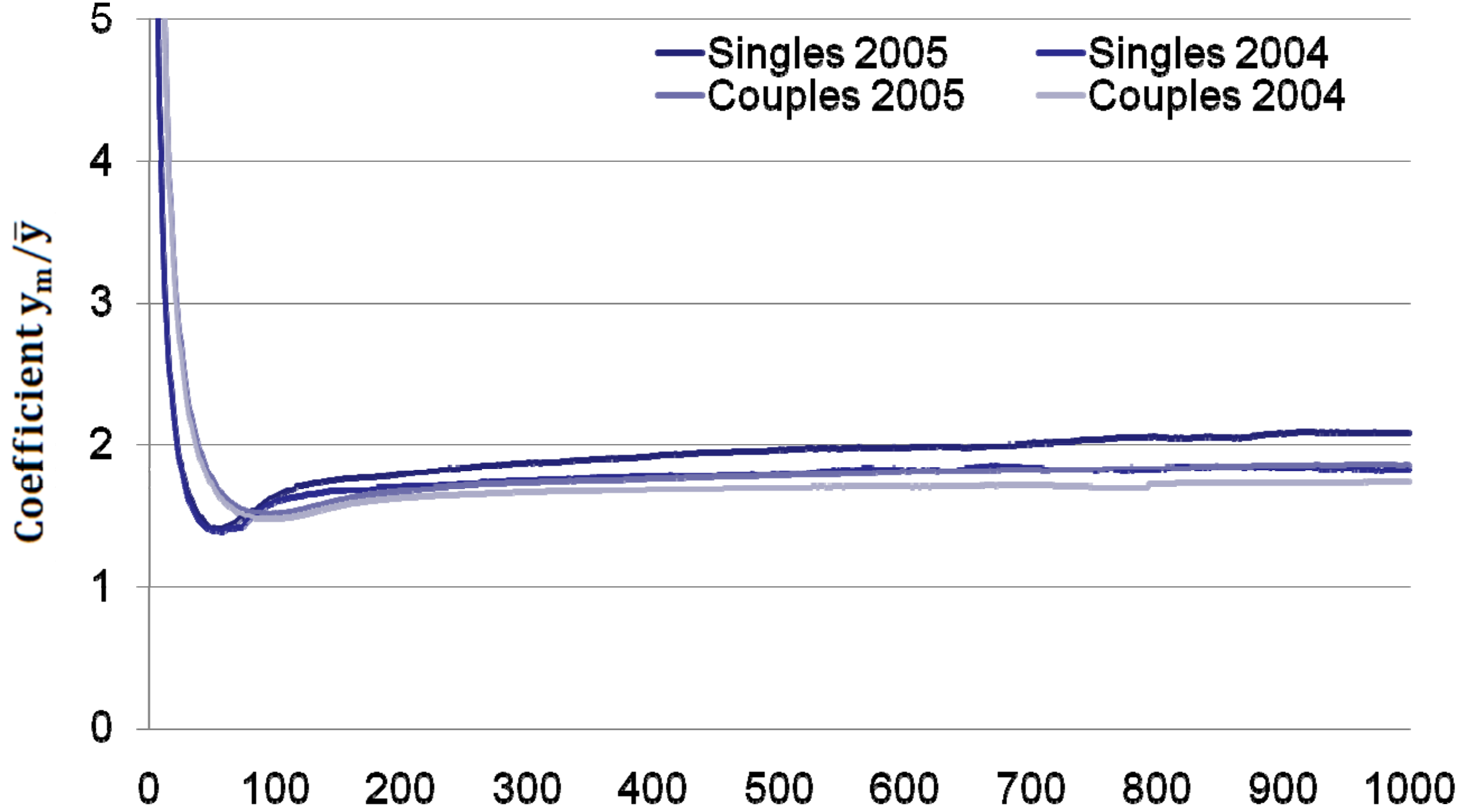
μ, y_{mS}, y_{mC} computed from 2005 ITR

ε_S^{μ}, η_S, ε_C^{μ}, η_C estimated from SOEP

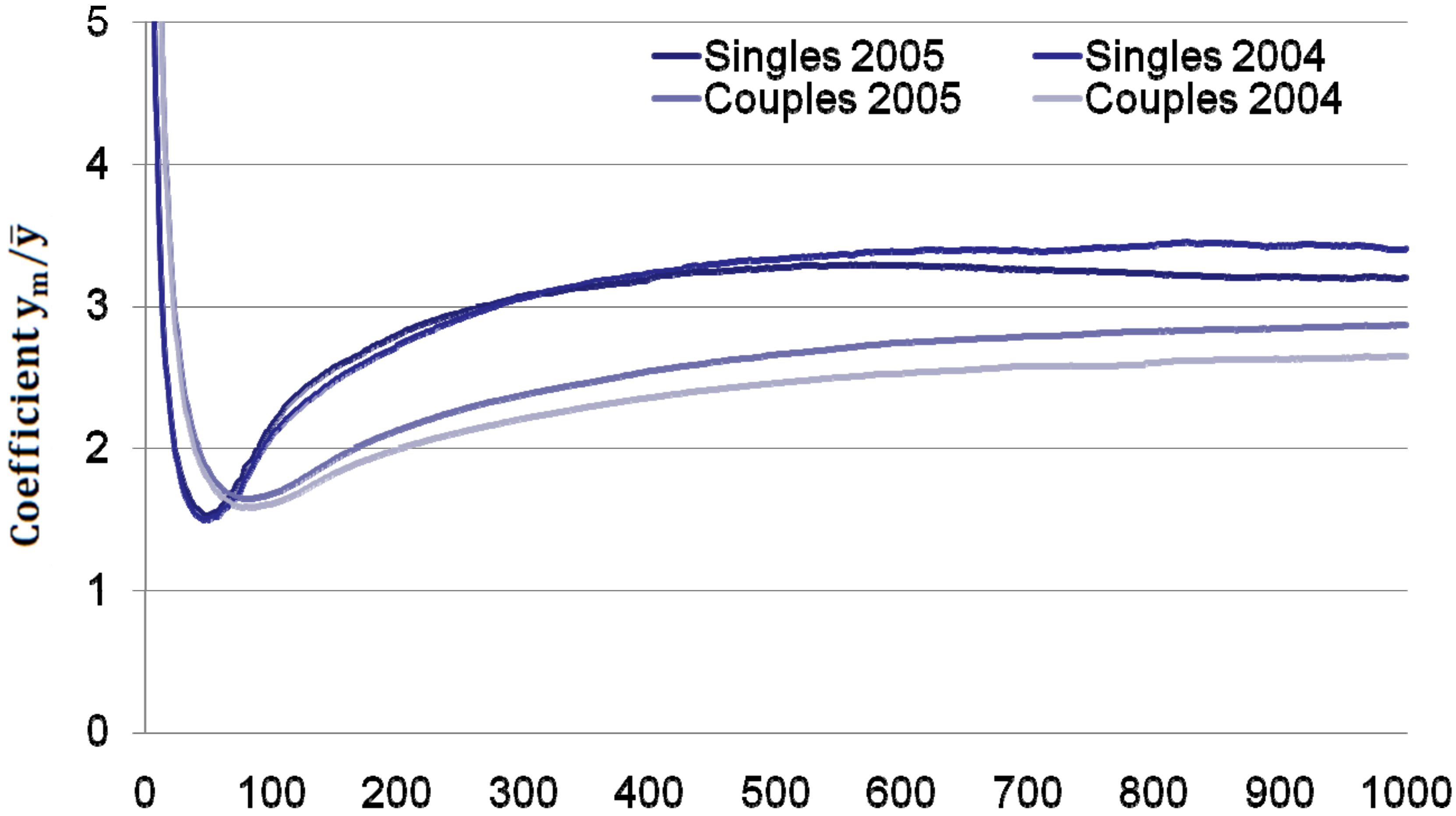
Ratio of mean wage income above $\bar{y}$ divided by $\bar{y}$



Ratio of mean wage and self-employment income above $\bar{y}$ divided by $\bar{y}$



Ratio of mean wage, self-employment and business income above $\bar{y}$ divided by $\bar{y}$



Optimal top marginal income tax rate (%)

$\bar{y}$	Wages	Earnings
50,000	29.6	39.6
100,000	39.5	52.2
300,000	53.2	62.6