Delayed Income Taxation and Fluctuations

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- instantaneous taxation of all income
- taxation of labor income delayed one year
- taxation of labor and capital income delayed one year

The model

$$E\sum_{t=0}^{\infty}\beta^t U(c_t, l_t), \quad 0 > \beta > 1,$$

$$y_t = z_t F(k_t, h_t),$$

$$z_{t+1} = \bar{z} + \rho z_t + \varepsilon_{t+1}, \quad 0 > \rho > 1,$$

$$k_{t+1} = (1-\delta)k_t + i_t, \quad 0 > \delta > 1.$$

$$c_t + i_t = (1 - \tau_h) w_t h_t + (1 - \tau_k) r_t k_t + \tau_k \delta k_t + TR_t$$

$$c_t + i_t = (1 - \tau_h) w_{t-1} h_{t-1} + (1 - \tau_k) r_t k_t + \tau_k \delta k_t + TR_t$$

$$c_t + i_t = (1 - \tau_h) w_{t-1} h_{t-1} + (1 - \tau_k) r_{t-1} k_{t-1} + \tau_k \delta k_{t-1} + TR_t$$

$$TR_t = \tau_h w_t H_t + \tau_k (r_t - \delta) K_t,$$

$$k_t = K_t, \quad I_t = i_t, \quad H_t = h_t.$$

Calibration

$$U(c,l) = \ln(c) + \phi \ln(l), \quad \phi = 2$$

$$F(k,n) = k^{\theta} n^{1-\theta}, \quad \theta = 0.35$$

$$\delta = 10\%, \quad \rho = 0.814, \quad \sigma_{\varepsilon} = 1.4\%$$

$$\tau_h = \tau_k = 35\%, \quad \beta = 0.96$$

Table 1: Steady state properties and welfare comparison of different models

Model	Steady states				X^a
	y	c	k	h	
	Low tax regime (Switzerland): $\tau = 0.35$, $1 - \theta = 0.35$				
Model 1	+1.95%	+1.95%	+1.95%	+1.95%	0.67%
Model 2	+2.74%	+2.51%	+3.59%	+2.28%	1.00%
	High tax regime (France): $\tau = 0.70$, $1 - \theta = 0.40$				
Model 1	+8.73%	+8.73%	+8.73%	+8.73%	6.19%
Model 2	+13.88%	+12.69%	+19.83%	+10.08%	9.20%
	Robustness: $\tau = 0.35$, $1 - \theta = 0.40$				
Model 1	+1.95%	+1.95%	+1.95%	+1.95%	0.73%
Model 2	+2.89%	+2.62%	+3.75%	+2.32%	1.15%
	Robustness: $\tau = 0.70$, $1 - \theta = 0.35$				
Model 1	+8.73%	+8.73%	+8.73%	+8.73%	6.05%
Model 2	+12.95%	+11.94%	+18.85%	+9.90%	8.51%

Table 2: Business cycle properties of the various models

Statistic	Model 0	Model 1	Model 2
sdev(y)	2.29	2.37	2.37
sdev(c)	1.24	1.29	1.29
sdev(i)	6.78	6.97	6.96
sdev(h)	1.00	1.12	1.14
sdev(τ_Σ)	2.29	2.15	1.98
corr(c, y)	0.91	0.91	0.91
corr(i, y)	0.96	0.96	0.96
corr(h, y)	0.91	0.93	0.91
corr(τ_Σ, y)	1.00	0.80	0.65
τ_Σ is the sum of all tax receipts.			

Heterogeneous economy

- Risk is idiosyncratic
- Liquidity contraint
- Higher bound on benefit of delaying

Calibration:

UI benefits: 70%

Unemployment rate: CH: 2.6%, F: 12%

Unemployment duration: CH: 1 year, F: 6 years

Frequency: quarterly

No delay in capital income taxation

Experiment	X^a	SS
Benchmark economy	1.26%	1.95%
Less generous unemployment insurance ($\alpha = 0.35$)	1.95%	1.95%
No unemployment insurance ($\alpha = 0$)	2.82%	1.95%
Low weight of leisure in utility ($\phi = 1.5$)	1.48%	1.88%
High weight of leisure in utility ($\phi = 2.5$)	1.00%	1.98%
Higher unemployment rate ($u = 12\%$)	1.67%	1.95%
Longer unemployment duration ($p(e_{t+1}\|u_t) = 4.2\%$)	1.48%	1.95%

Experiment	X^a	SS
Benchmark economy	7.25%	8.73%
Less generous unemployment insurance ($\alpha = 0.35$)	10.95%	8.73%
No unemployment insurance ($\alpha = 0$)	15.88%	8.73%
Low weight of leisure in utility ($\phi = 1.5$)	8.50%	8.55%
High weight of leisure in utility ($\phi = 2.5$)	6.05%	8.85%
Lower unemployment rate ($u = 2.6\%$)	6.37%	8.73%
Shorter unempl. duration ($p(e_{t+1}\|u_t) = 24\%$)	6.48%	8.73%