Why Americans Work Harder

$$U = \sum_{i=1}^{\infty} \gamma^i [\log c_i + \theta \log(100 - h_i)]$$

.

GDP and Hours Worked, G7

Country	Hours Per Week Per Person 15-64	GDP Per Hour (US=100)	GDP Per Person 15-64 (US =100)
Germany	19.3	99	74
France	17.5	110	74
Italy	16.5	90	57
Canada	22.9	89	79
United Kingdom	22.8	76	67
Japan	27.0	74	78
United States	25.9	100	100

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GDP and Hours Worked, G7

GDP Figures are OECD Purchasing Power Parity

Data are 1993-1996 figures

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United States	25.9	100	100

1970-74 Data

Country	Hours Per Week Per Person 15-64	GDP Per Hour (US=100)	GDP Per Person 15-64 (US =100)
Germany	24.6	72	75
France	24.4	74	77
Italy	19.2	65	53
Canada	22.2	91	86
United Kingdom	25.9	62	68
Japan	29.8	49	62
United States	23.5	100	100

17.5

25.9

1993-1996 Data

Why the differences? And why the changes?

Country	Hours Per Week Per Person 15-64	GDP Per Hour (US=100)	GDP Per Person 15-64 (US =100)
Germany	19.3	99	74
France	17.5	110	74
Italy	16.5	90	57
Canada	22.9	89	79
United Kingdom	22.8	76	67
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24.4

23.5

1993-1996 Data

	Hours Per Week Per Person	GDP Per Hour	GDP Per Person 15-64
Canada			
United Kingdom			
Japan			
United States	25.9	100	100

Why the differences? And why the changes?

Lets look at a model by Edward Prescott

24.4

23.5

Utility in the Prescott Model

$$U = \log c_1 + \log c_2 + \log c_3 + \log c_4$$

The Immortal Consumer

$$U = \log c_1 + \log c_2 + \log c_3 + \log c_4$$

$$U = \gamma \log c_1 + \gamma^2 \log c_2 + \gamma^3 \log c_3 + \gamma^4 \log c_4 + \gamma^5 \log c_5 + \ldots$$

.

Allowing for Leisure

$$\log c_i + \theta \log(100 - h_i)$$

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The Final Equation

$$U = \gamma[\log c_1 + \theta \log(100 - h_1)] + \gamma^2[\log c_2 + \theta \log(100 - h_2)] + \ldots$$

$$U = \sum_{i=1}^{\infty} \gamma^i [\log c_i + \theta \log(100 - h_i)]$$

.

Optimization

$$U = \sum_{i=1}^{\infty} \gamma^i [\log c_i + \theta \log(100 - h_i)]$$

$$(1+\tau_s)c_t + (1+\tau_x)x_t = (1-\tau_w)w_t h_t + (1-\tau_k)(r_t - \delta)k_t + \delta k_t + T_t$$

.

Optimization

$$U = \sum_{i=1}^{\infty} \gamma^i [\log c_i + \theta \log(100 - h_i)]$$

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.

The Production Function

$$Y_{it} = A_{it} K_{it}^{\alpha} L_{it}^{1-\alpha}$$

$$K_{it} = K_{i,t-1}(1-\delta) + X_{it}$$

The Tax on Consumption and Wages

$$\tau_w^* = \frac{\tau_s + \tau_w}{1 + \tau_s}$$

Hours Worked

$$h_{it} = \frac{1-\alpha}{1-\alpha+\frac{c}{y}\frac{\theta}{(1-\tau_w^*)}}$$

Hours Worked

The higher the value of leisure (i.e., the higher the value of θ) the fewer hours worked

$$h_{it} = \frac{1-\alpha}{1-\alpha+\frac{c}{y}\frac{\theta}{(1-\tau_w^*)}}$$

Hours Worked

The higher the value of leisure (i.e., the higher the value of θ) the fewer hours worked

The higher the tax rate (i.e., the higher the value of τ) the fewer hours worked

$$h_{it} = \frac{1-\alpha}{1-\alpha+\frac{c}{y}\frac{\theta}{(1-\tau_w^*)}}$$

Fitting the Model

Country	Tax rate τ	c/y	Actual	Predicted
Germany	0.59	0.74	19.3	19.5
France	0.59	0.74	17.5	19.5
Italy	0.56	0.69	16.5	18.8
Canada	0.52	0.77	22.9	21.3
United Kingdom	0.44	0.83	22.8	22.8
Japan	0.37	0.68	27.0	29.0
United States	0.40	0.81	25.9	24.6

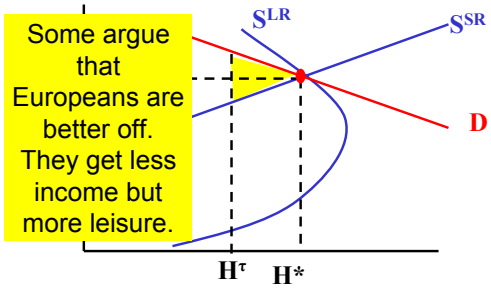
Fitting the Model

Country	Tax rate τ	c/y	Actual	Predicted
Japan	0.37	0.68	27.0	29.0
United States	0.40	0.81	25.9	24.6

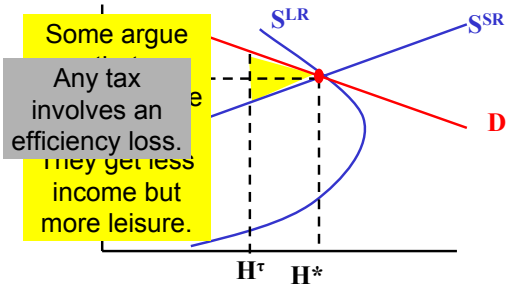
The differences are consistent with the tax rates.

Moreover, the change is consistent with changes in tax rates.

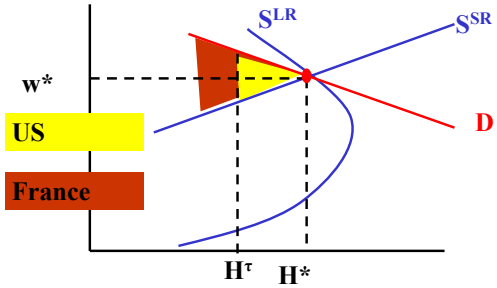
Are Europeans Better Off?



Are Europeans Better Off?



Are Europeans Better Off?



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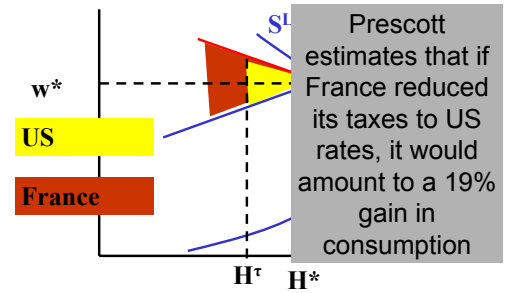

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