

# A Simple Labor-Leisure Model with Habits: Some Simulations from Previous Results

Mark M. Drozd

Johns Hopkins University

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# Introduction

- Introduce habits into the life-cycle labor supply model
  - Already has been done (see Bover (1991))
- Use the previous results to create some visualizations
- Change the parameter values to assess the validity of the model.
- Even under perfect foresight, this problem is fairly tough.

# Key Result

- Original point estimates for the parameter values too high
  - Risk-free rate in the 20% range (if only this were true!)
- Adjustment of wage elasticities.

# The Problem

We want to maximize the following utility function

$$\sum_{t=0}^{D-t} \beta^t u(c_t, l_t, h_t^l) \quad (1)$$

subject to the following constraint:

$$m_{t+1} = (m_t - c_t)(1 + r) + y_{t+1} \quad (2)$$

$$y_t = W(T - l_t) \quad (3)$$

# Bellman

We can rewrite this problem in Bellman form.

# Overview–Pictorially

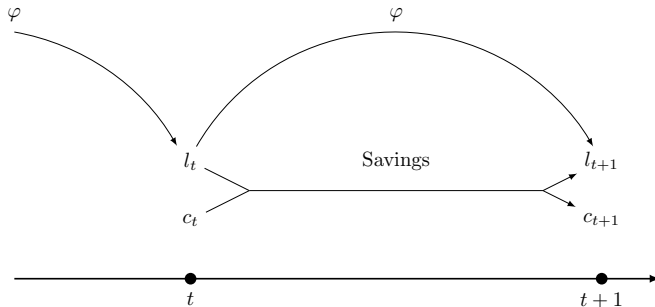


Figure: Stylized Model

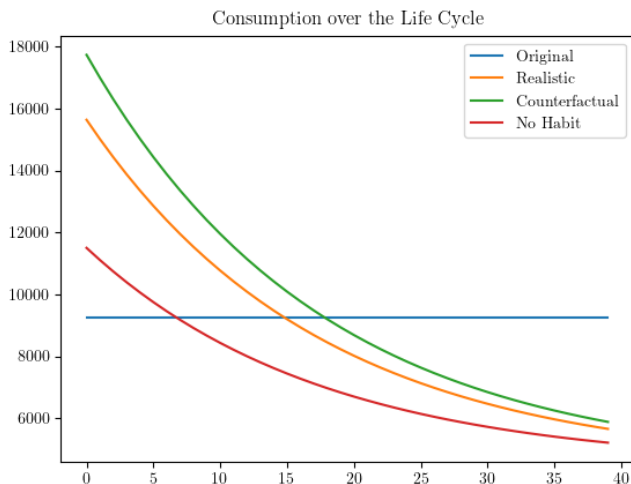
Behold a stylized model of the labor-leisure model with habits.

# Calibrations

Table: Calibrated Parameters

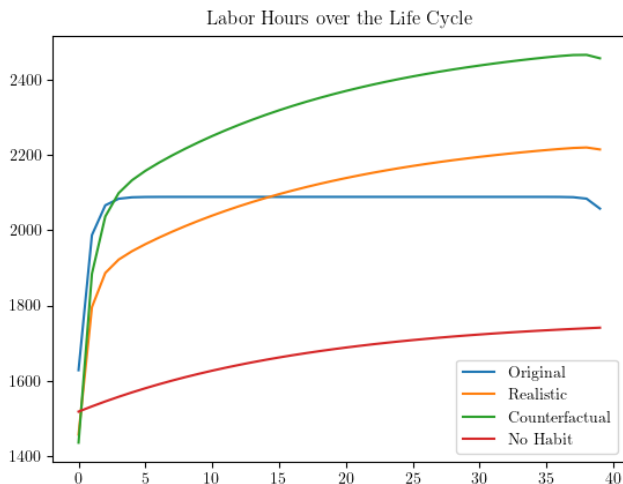
Simulation	$\gamma_h$	$\gamma_c$	$\varphi$	$\rho$	$r$
Original	1768.1516	4454.0084	0.2205	0.2429	0.2429
Realistic	1768.1516	4454.0084	0.2205	0.0800	0.0200
Counterfactual	1768.1516	4454.0084	0.3000	0.0800	0.0200
No Habit	1768.1516	4454.0084	0.0000	0.0800	0.0200

# Life Cycle Consumption





# Life Cycle Labor Hours



# Elasticities

Table: Simulated Elasticities

Simulation	$\epsilon$	$\eta^\alpha$
Original	0.0734	-0.1272
Realistic	0.0658	-0.1206
Counterfactual	0.0660	-0.1096
No Habit	0.0606	-0.1505

BOVER, OLYMPIA (1991): "Relaxing Intertemporal Separability: A Rational Habits Model of Labor Supply Estimated from Panel Data," *Journal of Labor Economics*, 9(1), 85–100.