Discussion of “Hysteresis in Unemployment and Jobless Recoveries” by D. Plotnikov

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Multiple Equilibria and Financial Crises
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What explains “jobless” recoveries?

Summary:

- Agents either work or search for work: Don’t care about leisure. Negative externality as firms search harder for workers.

- Model introduces a persistent “belief shock” to $c_t/w_t$ ratio in place of labor-leisure tradeoff.

- Steady state does not pin down $c_t/w_t \Rightarrow$ continuum of steady state employment rates.

- Persistent belief shock $\Rightarrow$ persistent shift in $c_t/w_t \Rightarrow$ persistent shift in employment.
Basic setup of model

Standard part:

\[
\frac{1}{c_t} = \beta E_t \left\{ \frac{1}{c_{t+1}} \left[ r_{t+1} + 1 - \delta \right] \right\}
\]

\[
c_t + k_{t+1} - (1 - \delta) k_t = r_t k_t + w_t \ell_t, \quad r_t = \partial y_t / \partial k_t
\]

\[
w_t = \partial y_t / \partial \ell_t
\]

Non-standard part:

\[
c_t = \phi \left[ \frac{y_t^p}{w_t} \right] w_t, \quad (\phi \equiv c_{ss} / y_{ss})
\]

\[
\left[ \frac{y_t^p}{w_t} \right] = \left[ \frac{y_{t-1}^p}{w_{t-1}} \right]^{0.95} \left[ \frac{y_t}{w_t} \right]^{0.05} \exp \left( \varepsilon_t^b \right), \quad \text{persistent belief shock}
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**Hansen (1985):**

\[
c_t = \frac{1}{B} w_t, \quad B = \text{marginal disutility of labor}
\]
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Plotnikov (2015) \approx Hansen (1985) + Persistent shock to $\frac{1}{B}$. 
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Simulations compare a two-shock model (Plotnikov) to a one-shock model (Hansen). Also, productivity shock is mean-reverting rather than a unit root, so there are no permanent shocks in Hansen model.
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Is there some independent evidence (e.g., from Consumer Expenditure Survey) to support the belief shock formulation? Are consumption expenditures really a long moving average of past incomes?
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Other types of fundamental shocks could account for sluggish employment recoveries, e.g., distribution shocks.
Capital’s share of income is not constant
Capital share = 1 - employee compensation/gross value-added of corporate bus. sector.
Simple Two-Shock RBC Model

**Capital Owners:**

\[
\max E_0 \sum_{t=0}^{\infty} \beta^t \log (c^c_t) , \quad c^c_t + k_{t+1} - (1 - \delta) k_t = r_t k_t
\]

**Workers:**

\[
\max E_0 \sum_{t=0}^{\infty} \beta^t \log \left[ c^w_t - B \exp (\bar{z}_t) \ell^\gamma_t \right] , \quad c^w_t = w_t \ell_t
\]

\[
\bar{z}_t = \bar{z}_t + \mu, \quad (\gamma - 1)^{-1} = 10.
\]

**Production:**

\[
y_t = A k^\theta_t [\exp (z_t) n \ell_t]^{1 - \theta_t} , \quad n = 4,
\]

\[
z_t = \text{productivity shock} \quad \text{(choose to match } y_t \text{ series in U.S. data)}.
\]

\[
\theta_t = \text{distribution shock} \quad \text{(take directly from U.S. data)}.
\]

\[
\ell_t = \left\{ \frac{A(1-\theta_t)}{B\gamma} \left[ \frac{k_t}{\exp(z_t)n} \right]^{\theta_t} \exp (z_t - \bar{z}_t) \right\}^{\frac{1}{\gamma + \theta_t - 1}} \quad \text{(decision rule)}.
\]
Data vs. Model: Per Capita Labor Hours
Nonfarm Business Sector: Hours of All Persons/Population, Indexed to 1 in 1990.q1.

U.S. Per Capita Labor Hours

U.S. Data
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U.S. Per Capita Labor Hours

- **Model**
- **Model, $\Theta_t=\text{const.}$**
- **U.S. Data**
Model-Implied Productivity Shocks

Model-Implied Productivity Shocks, $z_t$

- Model, $\Theta_t=\text{const.}$
- Model
- Trend

Graph showing the model-implied productivity shocks from 1990 to 2015.