Discussion of “Understanding the Great Recession” by Christiano, Eichenbaum, and Trabant

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GROWTH OF THE NEW KEYNESIAN TOWER

Calvo pricing
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Dixit-Stiglitz
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Frisch analysis of a single worker’s labor supply

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Leading example

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\(\psi\) is the Frisch elasticity of labor supply.
Big household

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\max_{c, h, L} \log c - Lv(h) - \lambda c + L\lambda wh - L\gamma
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\[ \frac{1}{c} = \lambda \Rightarrow c = \frac{1}{\lambda} \]

\[ L v'(h) = L w \lambda \Rightarrow \text{hours same as individual} \]
Participation

\[ L \in (0, 1) \text{ and } \lambda wh^* - \gamma = v(h^*) \]
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.
Homogeneous households

Exogenous participation: $\lambda wh^* - \gamma > v(h^*)$
Homogeneous households

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Rogerson: $\lambda wh^* - \gamma = v(h^*)$
Heterogeneous household members (Galí)

\[ \gamma \text{ distributed as } G(\gamma) \text{ within the household} \]
Heterogeneous household members (Galí)

\( \gamma \) distributed as \( G(\gamma) \) within the household

Members with \( \gamma < w\lambda w^* - v(h^*) = \gamma^*(w\lambda) \) are in the labor force: \( L = 1 \)
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Members with \[ \gamma < w\lambda w^* - v(h^*) = \gamma^*(w\lambda) \] are in the labor force: \[ L = 1 \]

Otherwise, \[ L = 0 \]
**Aggregate labor supply**

\[ L(w\lambda) = G(\gamma^*(\lambda w)) \]
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Envelope condition: \( d\gamma^*/d(w\lambda) = h^* > 0 \), so \( L' > 0 \).
Linear $v(h)$, as in Christiano et al.

Household makes its chosen workers work maximal hours:

$$w^* = 1$$
Linear $v(h)$, as in Christiano et al.

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All previous results go through in this case.
**Linear \( v(h) \), as in Christiano et al.**

Household makes its chosen workers work maximal hours:
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All previous results go through in this case.

But lack of variation in hours per worker is wildly inaccurate—cyclical movements in hours per week account for almost half of total variation in labor input.
INDEX OF WEEKLY HOURS OF WORK

![Index of weekly hours of work chart]

- The chart shows the index of weekly hours of work from 2003 to 2013.
- The values range from 0.86 to 1.04.
- There is a noticeable decrease around 2010.
Cyclical variations in participation

$\lambda$: Good times mean higher consumption and lower marginal utility
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$w$: Good times mean lower wages if a force other than productivity expands output and employment; in that case, participation $L$ falls in booms and rises in recessions

Recessions resulting from declines in productivity may depress participation.
Unemployment

Households allocate $L$ of their members to employment but only $\phi L$ hold jobs; the remainder are unemployed. Unemployed have $v = 0$. 

Now

$$\max c, h, L \log c - Lv(h) - \lambda c + \phi L \lambda w h - \phi L \gamma$$

First-order conditions are the same as for $\phi = 1$, but output and employment will be lower, so $w\lambda$ is higher and participation is higher if there is an exogenous decrease in $\phi$. 


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$x$ raises the employment rate $\phi$, raises Hicks-neutral productivity $z$, and lowers $\lambda$. 

Three effects: (1) direct productivity effect, procyclical, (2) labor-demand effect, countercyclical, and (3) well-being effect, countercyclical.
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\[
\frac{d(w\lambda)}{dx} = \frac{z'F_N\lambda + zF_{N,N}\phi'L + zF_N\lambda'}{1 - zF_{N,N}\phi'L'}
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HETEROGENEITY EXPLAINS PROCYCLICAL PARTICIPATION

<table>
<thead>
<tr>
<th>Comparative advantage in job market</th>
<th>Economic condition</th>
<th>Working</th>
<th>Intense job search</th>
<th>Sporadic job search</th>
<th>Working or searching</th>
<th>Reported participation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>Boom</td>
<td>0.90</td>
<td>0.04</td>
<td>0.00</td>
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<td>Slump</td>
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<tr>
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<tr>
<td>Average</td>
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<td>0.65</td>
</tr>
</tbody>
</table>
Adding those who want a job, have searched for work during the prior 12 months, and were available to take a job during the reference week, but had not looked for work in the past 4 weeks.