“Reconciling Hayek’s and Keynes’ views of recessions”
by
Beaudry Galizia Portier

Discussion by Iván Werning
@ NBER SI EFG 2014
Key Ideas

- High (excessive?) past accumulation
  - lower activity today

- Q: Efficient?
- A: No.

- Feedback loop (Chamley, 2013)
  - precautionary lower spending
  - risk of unemployment

- Keynesian conclusions, but without sticky prices
**Hayek and Keynes**

- **Hayek’s liquidationist view**
  - recession due to excessive boom
  - let recession run its course
  - stimulus only prolongues the adjustment

- **Keynesian view**
  - recession inefficient
  - stimulus warranted

- **This paper**
  - sides with former description
  - sides with latter prescription
Two Modules

- Precautionary Savings
- Labor market
Discussion

- Review precautionary saving feedbacks
  - General equilibrium, market clearing
  - Monetary model: zero lower bound
- Labor market friction
  - Wage determination
  - Matching technology
- Policy implications
- Open questions
Precautionary Savings Module
Standard Model

- Standard model
  - infinite horizon \( t=0,1,2,\ldots \)
  - consumption, labor, no capital
  (add \( t=0 \) durable later)
  - comparable: New Keynesian model

- Idiosyncratic uncertainty in income
  - precautionary savings
  - general equilibrium?

- “Krugman Trick”
  - assume at \( t=1 \) and beyond: efficient
  - uncertainty only at \( t=0 \)
\[
\sum_{t=0}^{\infty} \beta^t (U(c_t) - v(l_t))
\]

\[U(c) = -e^{-c}\]

\[y^i = y + u^i\]
\[
\sum_{t=0}^{\infty} \beta^t (U(c_t) - v(l_t)) \quad U(c) = -e^{-c}
\]

\[
y^i = y + u^i
\]

\[
U'(c_t) = \beta R_t \mathbb{E}[U'(c_{t+1})]
\]
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\[
U'(c_t) = \mathbb{E}U'(r a_{t+1}) \beta R U'(\bar{y})
\]
\[
\sum_{t=0}^{\infty} \beta^t \left( U(c_t) - v(\ell_t) \right) \quad U(c) = -e^{-c}
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y^i = y + u^i
\]

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U'(c_t) = \beta R_t \mathbb{E} [U'(c_{t+1})]
\]

\[
U'(c_t) = \mathbb{E} U'(ra_{t+1}) \beta R U'(\bar{y})
\]

\[
ra_{t+1} = r R \left( y^i - c \right) = r R \left( y + u^i - c \right) = r R u^i
\]
\[
\sum_{t=0}^{\infty} \beta^t (U(c_t) - v(l_t)) \quad U(c) = -e^{-c}
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y^i = y + u^i
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\[
r a_{t+1} = r R (y^i - c) = r R (y + u^i - c) = r R u^i
\]

\[
U'(c) = \hat{\beta}(\sigma) R U'(y_{t+1})
\]

\[
\hat{\beta}(\sigma) = \mathbb{E} U'(r R u) \beta
\]
Feedback Loop

\[ \sigma(C) \rightarrow \beta(C) \equiv \hat{\beta}(\sigma(C)) \]
Feedback Loop

$\sigma(C) \rightarrow \beta(C) \equiv \hat{\beta}(\sigma(C))$

$U'(C) = \beta(C) RU'(y')$
Feedback Loop

\[ \sigma(C) \rightarrow \beta(C) \equiv \hat{\beta}(\sigma(C)) \]

\[ U'(C) = \beta(C) RU'(y') \]

- Multiplicity possible
  - authors shy away… perhaps they shouldn’t
- Chamley (beautiful paper)
  - dynamics from good to bad equilibrium
  - stuck in bad equilibrium
  - Policy implications?
- This paper
  - simpler
  - more policy implications
Amplification

- Add “durable”
  - endowment of good at $t=0$
  - demand shifter
\[ U'(X + y) = \beta(y) \cdot RU'(\bar{y}) \]
durable

\[ U'(X + y) = \beta(y) RU'(\bar{y}) \]

fixed

consumption constant or falling with X
consumption constant or falling with $X$

output falling

\[ U'(X + y) = \beta(y) \, RU'(\bar{y}) \]
durable \( U'(X + y) = \beta(y) RU'(\bar{y}) \)

fixed

consumption constant or falling with \( X \)

output falling more
durable \quad \Rightarrow \quad U'(X + y) = \beta(y) RU'(\bar{y})

\text{fixed}

C

consumption constant or falling with X

output falling more
durable \[ U'(X + y) = \beta(y) RU'(\bar{y}) \]

fixed

consumption constant or falling with X

output falling more

adjusts

\[ U'(X + y) = \beta(y) RU'(\bar{y}) \]
durable \quad fixed

\[ U'(X + y) = \beta(y) RU'(\bar{y}) \]

c

consumption constant or falling with \( X \)

output falling more

adjusts

\[ U'(X + y) = \beta(y) RU'(\bar{y}) \]

efficient \( y^*(X) \)
$U'(X + y) = \beta(y) \ R U'(\bar{y})$

- durable
- fixed
- consumption *constant or falling* with $X$
- output *falling more*
- adjusts

$R(X) = \frac{U'(X + y^*(X))}{\beta(y^*(X)) U'(\bar{y}')} \\
y^*(X)$

- efficient

durable → fixed

\[ U'(X + y) = \beta(y) RU'(\bar{y}) \]

C

consumption constant or falling with X

output falling more

adjusts

\[ U'(X + y) = \beta(y) RU'(\bar{y}) \]

efficient

\[ y^*(X) \]

\[ R(X) = \frac{U'(X + y^*(X))}{\beta(y^*(X))U'(\bar{y}')} \]

c

consumption increasing, output falling less
Monetary Economy

- Monetary Economy
  - sticky prices; demand determined output
  - Fed controls interest rate
- Fed response crucial
  - no change in interest rate: feedback loops
  - responsive monetary policy: optimum
- Hayek, Keynes and… Friedman?
Labor Market Module
Labor Market
Labor Market

- Feedback *without* sticky prices and ZLB?
Labor Market

- Feedback *without* sticky prices and ZLB?
- Paper...
  - labor market frictions
  - delivers constant interest rate!
Labor Market

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Labor Market

- Feedback *without* sticky prices and ZLB?
- Paper...
  - labor market frictions
  - delivers constant interest rate!

- Ignore uncertainty for a moment (pooling income)
  - not key...
  - ... before getting amplification, we need a platform
  - ... add it back later
\Pi^*(p, w) = p\Phi
\( \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \)
\[ \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \quad \rightarrow \quad \frac{w}{p} \]
\[ \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \ \rightarrow \ \frac{w}{p} \]

\[ pF'(\ell) = w \]

\[ v'(\ell) = \beta \mathcal{U}'(c')w \]
\[ \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \quad \frac{w}{p} \]

\[ pF'(\ell) = w \quad \ell \]

\[ v'(\ell) = \beta U'(c') w \quad w \]
\[ \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \]

\[ pF'(\ell) = w \]

\[ v'(\ell) = \beta U'(c')w \]
\[ \Pi^* \left( \frac{w}{p}, 1 \right) = \Phi \]
\[ pF'(\ell) = w \]
\[ v'(\ell) = \beta U'(c')w \]
\[ U'(X + y) = \beta p U'(c') \]
\[ c = N(F(\ell) - \Phi) \]
\[
\Pi^* \left( 1, \frac{w}{p} \right) = \Phi \quad \Rightarrow \quad \frac{w}{p}
\]

\[
pF'(\ell) = w \quad \Rightarrow \quad \ell
\]

\[
v'(\ell) = \beta U'(c')w \quad \Rightarrow \quad w
\]

\[
U'(X + y) = \beta pU'(c') \quad \Rightarrow \quad y
\]

\[
c = N(F(\ell) - \Phi) \quad \Rightarrow \quad N
\]
\[ \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \]

\[ pF'(\ell) = w \]

\[ v'(\ell) = \beta U'(c')w \]

\[ U'(X + y) = \beta pU'(c') \]

\[ c = N(F(\ell) - \Phi) \]

Note: risk not needed for inefficiency or constant consumption
\[ \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \]

\[ pF'(\ell) = w \]

\[ v'(\ell) = \beta U'(c')w \]

\[ U'(X + y) = \beta p U'(c') \]

\[ c = N(F(\ell) - \Phi) \]

**Note:** risk not needed for inefficiency or constant consumption

**Intuition or Magic?**
Special Assumptions
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- Special assumptions? Concern?
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- Labor market...
  - Nash or ex-post Walrasian
  - Leontief and infinite elastic entry
  - static one shot
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- Special assumptions? Concern?
- Labor market...
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  - Leontief and infinite elastic entry
  - static one shot
- Implications...
  - high wage rigidity...
  - ... high wage flexibility needed (Leontief)
Special Assumptions

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  - static one shot
- Implications…
  - high wage rigidity…
  - ... high wage flexibility needed (Leontief)
- What happens away from this?
Competitive Search

- Competitive Search
  - Firms post wage schedules
  - Workers direct their search
- Known to be efficiency in many settings
- Here: efficient if no uncertainty (e.g. pooling)

- Result: with Leontief matching and competitive search

  🔄 efficiency ➔ consumption rises with X
Competitive Search + Cobb Douglas
Competitive Search + Cobb Douglas

Graph showing the relationship between X and Y with different markers for c, y, N/L, I, P, and W.
Competitive Search + Cobb Douglas

Graph showing different lines for various categories labeled as c, y, N/L, l, p, and w. The x-axis represents X, ranging from 0 to 1, and the y-axis ranges from 0 to 2.2.
Other Matching

- Leontief
  - extreme wage flexibility needed
  - Nash or ex-post Walrasian not enough

- Cobb-Douglas…
  - Nash bargaining
  - Hosios condition: efficiency

- Ex post Walrasian?
\[ \frac{\mu(N)}{N} \Pi^* \left( 1, \frac{w}{p} \right) = \Phi \]

\[ pF'(\ell) = w \]

\[ v'(\ell) = \beta U'(c') w \]

\[ U'(X + y) = \beta pU'(c') \]

\[ c = \mu(N) F(\ell) - N \Phi \]
Ex Post Walras + Cobb Douglas
**Ex Post Walras + Cobb Douglas**

<table>
<thead>
<tr>
<th>X</th>
<th>c</th>
<th>y</th>
<th>N/L</th>
<th>l</th>
<th>p</th>
<th>w</th>
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<tr>
<td>0</td>
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<td>0.55</td>
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<td>1.65</td>
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<td>2.2</td>
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</tbody>
</table>
Ex Post Walras + Cobb Douglas
Ex Post Walras + Cobb Douglas
Other Wage Determination

- Wage rigidity may be feature, not bug (Hall)
  - fix W/P → throw out labor supply
  - needed: smooth matching technology
- Implication
  - employment pinned down…
  - … output determined
  - … consumption determined…
  - … interest rate adjusts
<table>
<thead>
<tr>
<th>No Risk</th>
<th>Ex-Post Walras</th>
<th>Competitive Search</th>
<th>“Hall” (fixed w/p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leontief</td>
<td>$\downarrow c \downarrow Y \downarrow R$</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
<td>X</td>
</tr>
<tr>
<td>Cobb Douglas</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
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<tr>
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</tr>
<tr>
<td>Leontief</td>
<td>$\downarrow c \downarrow Y \uparrow R$</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
<td>$\times$</td>
</tr>
<tr>
<td>Cobb-Douglas</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
<td>$\uparrow c \downarrow Y \downarrow R$</td>
</tr>
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<td>NORMATIVE</td>
<td>Ex-Post Walras</td>
<td>Competitive Search</td>
<td>“Hall” (fixed w/p)</td>
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<tr>
<td>Leontief</td>
<td>( c &lt; c^* )</td>
<td>( c = c^* )</td>
<td>?</td>
</tr>
<tr>
<td>Cobb Douglas</td>
<td>( c &lt; c^* )</td>
<td>( c &gt; c^* )</td>
<td>?</td>
</tr>
</tbody>
</table>

With risk
Labor Wedge

- Two intensive margin distortions...
  - fictitious margin: labor vs present consumption
  - actual margin: labor vs future consumption

- Definition of labor wedge
  - fictitious margin
  - intertemporal distortion

- Labor market is distorted, but
  - due to low entry of firms (jobs/vacancies)
  - along extensive margin, not intensive margin
Policy Implications
Policy Implications

- Feedback due to uncertainty
  - stop feedback by unemployment insurance
  - better consumption sharing…
  - … improves efficiency consumption level
  - efficiency in labor market

- May not go all the way to efficient
  - government spending?
  - labor market policies?
Very nice paper, lots to think about!

Two modules

- precautionary feedback: need fix R
- labor market friction: fixes R

How generality/plausible is the mechanism?

Policy implication:

- unemployment insurance
- government spending
- labor market policies?