Discussion of Bob Hall’s Paper

By

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Questions this paper addresses

• What triggered the Great Recession?
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• What triggered the Great Recession?

• Why is high unemployment persistent?
Answers the Paper Gives

• What triggered the Great Recession?
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• What triggered the Great Recession?
  – An increase in a financial friction
Answers the Paper Gives

• What triggered the Great Recession?
  – An increase in a financial friction

• Why is high unemployment persistent?
Answers the Paper Gives

• What triggered the Great Recession?
  – An increase in a financial friction

• Why is high unemployment persistent?
  – Sticky nominal wages
What are the Facts?
What are the Facts?

Inflation fell

0.57 percentage point decrease in inflation

2007m1 through 2008m8

2009m6 through 2011m4

Five Year Inflation Expectation

Unemployment Rate

3/10/2012

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What are the Facts?

Unemployment increased

Five Year Inflation Expectation

0.57 percentage point decrease in inflation

2007m1 through 2008m8

4.65 percentage point increase in unemployment

2009m6 through 2011m4

Unemployment Rate
What are the Facts?

The recovery in inflation expectations....
QE Worked

The recovery in inflation expectations... was due to Quantitative Easing

Shaded area is NBER Recession
What are the Facts?

Unemployment and Housing Wealth During the Great Recession

Shaded areas are recessions

House prices crashed

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What are the Facts?

Unemployment and the Stock Market During the Great Recession

The stock market crashed

Shaded areas are recessions

The S&P 500 Measured in Wage Units

Unemployment Rate

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What are the Facts?

• Inflation fell
What are the Facts?

• Inflation fell
• Unemployment increased
What are the Facts?

• Inflation fell
• Unemployment increased
• Asset prices crashed
Alternative Visions: A

- Market systems are self-stabilizing
  - Classical economics
  - Neoclassical synthesis
Alternative Visions: B

- Market systems are inherently unstable
  - Keynes
  - Minsky
Two Visions: Model A

• What is the impulse?
Two Visions: Model A

• What is the impulse?
  – Increase in a financial friction
Two Visions: Model A

• What is the impulse?
  – Increase in a financial friction

• What determines the curvature of the economic terrain?
Two Visions: Model A

- What is the impulse?
  - Increase in a financial friction
- What determines the curvature of the economic terrain?
  - Sticky wages
Model A

• What is the impulse?
  – Increase in a financial friction

• What determines the curvature of the economic terrain?
  – Sticky wages

Models where there is a unique steady state equilibrium with frictions
Two Visions: Model B

• What is the impulse?
Two Visions: Model B

• What is the impulse?
  — Confidence shock
Two Visions: Model B

• What is the impulse?
  – Confidence shock

• Why is economic terrain flat?
Two Visions: Model B

• What is the impulse?
  – Confidence shock

• Why is economic terrain flat?
  – Missing markets
Model B

• What is the impulse?
  – Confidence shock
• Why is economic terrain flat?
  – Missing markets

Models where there are multiple steady state equilibria driven by beliefs
Search

$\mathbf{m}(u, \nu)$

Search by households

$p_u$

Search by firms

$p_v$

Filled vacancies

$p_m$
Search

There are not enough prices in a search market to determine $u$ and $v$.

Filled vacancies

$P_m$

$m(u, v)$

$P_u$  $P_v$

Search by households

Search by firms
Closing a search model

• Nash bargaining
Closing a search model

• Nash bargaining
  – Add a new parameter
Closing a search model

• Nash bargaining
  – Add a new parameter
• Directed search
Closing a search model

• Nash bargaining
  – Add a new parameter

• Directed search
  – Replace the missing markets
Closing a search model

• Nash bargaining
  – Add a new parameter

• Directed search
  – Replace the missing markets

• Allow for multiple solutions
Closing a search model

• Nash bargaining
  – Add a new parameter

• Directed search
  – Replace the missing markets

• Allow for multiple solutions
  – Close the model in the asset markets
Closing a search model

- Nash bargaining
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Multiple Equilibrium and Search

• Finite multiplicities
  – Diamond RE Studs (1982),
Multiple Equilibrium and Search

• Finite multiplicities
  – Diamond RE Studs (1982),

• Continuum of equilibria
  – Howitt and McAfee IER (1987)
  – Hall AER (2005)
Search and Asset Markets: Model A

Unique steady state equilibrium

Labor market
Search and Asset Markets: Model A

Unique steady state equilibrium

Fundamentals pin down asset prices

Labor market

Asset markets
Search and Asset Markets: Model A

Unique steady state equilibrium

Labor market

Fundamentals pin down asset prices

Asset markets

What’s happening in the labor market is reflected in asset prices
Search and Asset Markets: Model B

Confidence determines asset prices

Asset markets
Search and Asset Markets: Model B

Confidence determines asset prices

Asset markets

Multiple steady state equilibria

Labor market
Search and Asset Markets: Model B

Confidence determines asset prices

Asset markets

Multiple steady state equilibria

Labor market

What’s happening in the asset markets CAUSES permanent movements in unemployment
Can we Distinguish Models A and B?

• Suppose that we close a search model with Nash bargaining: call this model A
Can we Distinguish Models A and B?

• Suppose that we close a search model with Nash bargaining: call this model A

• Suppose that we close a search model with self-fulfilling beliefs in the asset markets: call this model B
Proposition

• Suppose that we close a search model with Nash bargaining: call this model A
• Suppose that we close a search model with self-fulfilling beliefs in the asset markets: call this model B
• For every equilibrium generated by Model A there will be a process driving beliefs in Model B that makes the models observationally equivalent
Can we Distinguish Models A and B?

• Suppose that we allow bargaining weights to be time dependent in model A
Proposition

• Suppose that we allow bargaining weights to be time dependent in model A

• For every equilibrium generated by Model B there will be a sequence of bargaining weights such that the models are observationally equivalent
Questions Raised by Model A

• What was the trigger?
Questions Raised by Model A

• What was the trigger?
  – The increased financial friction is not explained.
Questions Raised by Model A

• What was the trigger?
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  – There was no big change in fundamentals so why did the market crash
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• Why are asset prices so volatile
Questions Raised by Model A

• What was the trigger?
  – The increased financial friction is not explained.
  – There was no big change in fundamentals so why did the market crash

• Why are asset prices so volatile
  – If there is a unique asset market equilibrium: why don’t asset market participants buy when prices are low and sell when they are high?
Explanations Given By Model B

• What was the trigger?
Explanations Given By Model B

• What was the trigger?
  – The trigger was a shift from one equilibrium to another.
Explanations Given By Model B

• What was the trigger?
  – The trigger was a shift from one equilibrium to another.

• Why are asset prices so volatile
Explanations Given By Model B

• What was the trigger?
  – The trigger was a shift from one equilibrium to another.

• Why are asset prices so volatile
  – Any asset price is an equilibrium
Implications of Accepting Vision B

• The stock market crash *caused* the Great Recession
Implications of Accepting Vision B

• The stock market crash *caused* the Great Recession

• There is no “natural rate of unemployment”
Implications of Accepting Vision B

• The stock market crash caused the Great Recession
• There is no “natural rate of unemployment”
• The economy was more stable in the post-war period because of successful monetary policies and fiscal stabilizers
Summary

• The paper uses the nominal wage bargaining model of Gertler-Trigari to understand the Great Recession
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• As with all of Bob’s papers: this one is elegant, simple and attacks an important issue
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• Search theory is the right way to address the unemployment issue
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• As with all of Bob’s papers: this one is elegant, simple and attacks an important issue

• Search theory is the right way to address the unemployment issue

• But there is a better way to close the model than with the sticky money wage assumption