Labor Markets and Monetary Policy

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Disclaimer

I am speaking for myself today, and not for others in the Federal Reserve or on the Federal Open Market Committee.

Basic Principle of Economic Policymaking

- Don't use a knife as a screwdriver.

- That is: Given a problem, use the appropriate policy tool for that problem.

What Problem Does Monetary Policy Solve?

- Economies have to adjust in response to macroeconomic shocks.
  - like increases in oil prices or falls in asset prices

- Lesson from the 1970's: Monetary policy cannot eliminate this adjustment process.

- Primary role of monetary policy: offset impact of **nominal rigidities**.

What Are Nominal Rigidities?

- Broadly: Prices and inflation expectations adjust only sluggishly in response to shocks.

- This sluggish adjustment can create misallocations of resources.

- Appropriate monetary policy can mitigate these misallocations.

- Thus, if demand is low because of nominal rigidities, then monetary policy should be accommodative.

- (In this talk: monetary policy = interest rate policy, including recent LSAP.)

Monetary Policy and Unemployment

- When is monetary policy the right tool to lower high unemployment?

- Define u^* to be unemployment rate in the absence of nominal rigidities.
  - u^* is called many things: structural, **natural**, potential, etc. ...

- Offsetting nominal rigidities implies that monetary policy accommodation should move with $u_t - u_t^*$.

- Challenge for policymakers: u^* changes over time.

Two Questions about the Natural Rate

- What can we learn about u^* from the data on unemployment and vacancies?

- What other data can provide supplementary information about u^*?

Question 1: Information in Unemployment and Vacancies

- Starting point: In large part, unemployment is high because job creation is low.

- Analyze sources of low job creation using Diamond-Mortensen-Pissarides model.

- Main result: these data alone are not conclusive.

- Possible that low job creation is due only to real factors (for example, UI benefits).
  - That is, u^* may be nearly as high as u.

- Then: Current monetary policy is overly accommodative.

- But it is also possible that nominal rigidities are playing a significant role.

- That is, u^* may be much lower than u.

- Then: Current level of accommodation is appropriate.

Question 2: Other Sources of Information?

- Answer to question 1: Aggregate u-v data aren't sufficient to pin down u^*.

- Second question: Are there other data that can be of use?

- Yes: data in surveys and inflation.

- This auxiliary information supports current level of accommodation.

A Point of Clarification

- My question: What is u^* NOW?
- I'm not asking: What *was* u^* in December 2008?
- Many reasons to think that u^* changes over time.
- Policymakers need to know current (and future) u^*, not historical u^*.

Outline

1. Diamond-Mortensen-Pissarides (DMP) Model

2. Information in U-V Data

3. Other Sources of Information

4. Conclusions

1. DMP Model

- A firm pays a cost k to create a vacancy.
- With some probability, vacancy attracts a qualified applicant.
- Firm and applicant then bargain over the wage.

The Essential Model Element

- Key model variable is the ratio $\frac{u}{v}$.

- Firm is more likely to attract a qualified applicant if $\frac{u}{v}$ is high.

- Worker will accept lower wages if $\frac{u}{v}$ is high.

Benefits of Job Creation in the DMP Model

- Firm pays cost k to create a vacancy.

- Approximate formula for the firm's benefit from that vacancy:

$$\frac{u}{v} \times (p - z) \times \text{constant}$$

Definition of Terms

- p is the worker's expected productivity (net of taxes!).

- z is the worker's flow benefits of not working.

Intuition for the Formula

$$\frac{u}{v} \times (p - z) \times \text{constant}$$

- Rises as $\frac{u}{v}$ rises because:
  - vacancies are likely to attract qualified applicants
  - applicants will accept low wages.

- Rises as p rises, because workers generate more output.

- Falls as z rises, because firm needs to pay higher wages.

Puzzling Lack of Job Creation?

- In December 2007, $u = 0.05$ and $v = 0.031$ (JOLTS data).
- In December 2010, $u = 0.094$ and $v = 0.023$.
- $\frac{u}{v}$ is 2.5 times higher in December 2010.

- Benefits of creating a job seem to have risen enormously.
- Costs have probably not changed.
- **Why won't firms create jobs, given these large benefits?**
- Answering this question will lead us to u^*.

2. Information in *U*-*V* Data

Aggregate Demand Shortfall

- Standard explanation is that demand is insufficient.

- Firms believe that they can't sell more than their current production ...

- and so they don't hire more workers.

- Implicit: Firms can't (or won't?) cut prices to generate more demand.
- "Insufficient demand" means prices aren't adjusting effectively.
- Nominal rigidities are generating low output and high unemployment.
- In this case, u^* is much lower than u.

Other Sources of Low Job Creation

- Does the DMP model suggest other explanations for low job creation?

- Return to the formula for benefits of job creation:

$$\frac{u}{v} \times (p - z) \times \text{constant}$$

- We've seen that $\frac{u}{v}$ rose by 2.5 times from 12/07 to 12/10.

- What about the other terms in the formula?

Changes in p (After-Tax Productivity)

- Why might p have fallen (relative to trend) since 2007?

- Expected increases in taxes:
  - federal and state; corporate, personal, sales

- Expected increases in input prices (like energy).

Changes in z (Benefits of Not Working)

- Why might z have risen (more than usual) since 2007?
  - extensions in UI benefits

Tentative Numbers

- Mortensen-Nagypal (2007, RED) set $p = 1$ and $z = 0.73$.

- Suppose p fell by 10% and z rose by 0.05 in the past three years.
  - technically: relative to trend.

- These are very large – but not entirely implausible – changes.

- If p and z change like this, what happens to the benefits from job creation?

$$\frac{u}{v} \times (p - z) \times \text{constant}$$

- $(\frac{u}{v}) \times (p - z)$ rises by only 11%.

- In this scenario: Nominal rigidities are much less significant.

- Hence: u^* is not much lower than u.

Summary

$$\frac{u}{v} \times (p - z) \times \text{constant}$$

- Since December 2007, $(\frac{u}{v})$ has gone up 2.5 times.

- By itself, this increase suggests that nominal rigidities are constraining job creation.
  - u^* is well below u.

- BUT: It is *possible* that p has fallen and z has risen.

- $p \downarrow 0.1$ and $z \uparrow 0.05$ implies job creation benefits are only up 11%.

- But then nominal rigidities are not constraining job creation much.
  - u^* is nearly as high as u.

Bottom Line

- Aggregate *u*-*v* data are inconclusive about u^*.

- These data are inconclusive about appropriate level of monetary policy accommodation.

Labor Market Matching Efficiency

- Along with p and z, there is another factor that could increase u^*.
- If *labor market matching efficiency* fell, then u^* would rise.
- Definitionally: Labor market matching efficiency has declined if:
- Firm's probability of finding a qualified applicant is lower than is implied by the high value of $\frac{u}{v}$.

- DMP model (applied to *u*-*v* data) provides an estimate of the post-2007 fall in labor market matching efficiency.

- Even when we add this estimate, the *u*-*v* data are consistent with a wide range of possible u^*.

- u^* might be as low as 5.9% (if you think $(p - z)$ hasn't changed).

- or u^* might be as high as 8.9% (if you think $(p - z)$ has fallen by 0.15).

3. Other Information?

- Policymakers need to know u^* to determine appropriate monetary policy.
- The aggregate u-v data aren't definitive about the magnitude of u^*.
- Do policymakers have supplementary sources of information about u^*?

Basic Intuition of Auxiliary Information

- u^* is low relative to u if nominal rigidities are keeping demand low.

- We need information to detect state of demand.

Surveys

- Various surveys of businesses about impediments to job creation.
- Reserve bank presidents ask businesspeople for causes of low job creation.
- What I find: "insufficient demand" first – and then taxes/regulation.
- Implication: u^* may have risen since December 2007, but $u^* < u$.

(Somewhat Crude) Inflation Heuristics

- If $u - u^*$ is high, then nominal rigidities are pushing demand down.
- That should be reflected in behavior of inflation.
- Basic idea: Low demand puts downward pressure on inflation.
- Exact impact depends on model of price-setting and expectations.

- Older models: $u_t - u_t^*$ is high when π_t (inflation) is low relative to π_{t-1}.

- Newer models: $u_t - u_t^*$ is high when π_t is low relative to π_{t+1}^e.

- In second half of 2010: core PCE inflation was 0.5%.
- Low compared with past core PCE inflation ...
- and low compared with future core PCE inflation.
- Both new and old models suggest $u_t - u_t^*$ is significantly positive.

4. Conclusions

- Is high unemployment mainly due to nominal rigidities?

- Or is it mainly due to other factors?

- Aggregate data on unemployment/vacancies aren't definitive.

- But other data imply that $u_t - u_t^*$ is significantly positive.

- My conclusion:

- **It is appropriate for monetary policy to be highly accommodative**.

Future Policy?

- In the future: I expect both u_t and u_t^* to fall over time.
- When will the FOMC need to cut back on accommodation?
- The FOMC will continue to re-evaluate as it gets new information.
- I will be paying close attention to the behavior of core inflation.