MEASURING FULL EMPLOYMENT WITH $u^* = \sqrt{uv}$

Pascal Michaillat, Emmanuel Saez

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HOW TO INTERPRET LEGAL CONCEPT OF FULL EMPLOYMENT?

• Employment Act of 1946
  – “policy and responsibility of the federal government…to promote maximum employment, production”

• Federal Reserve Reform Act of 1977
  – responsibility of the Federal Reserve “to promote effectively the goals of maximum employment, stable prices”

• Full Employment and Balanced Growth Act of 1978
  – “responsibility of the federal government to use all practicable means…to foster and promote…full employment and production”
PROPOSITION: FULL EMPLOYMENT = EFFICIENT UNEMPLOYMENT

- maximizes productive use of labor
  - consistent with standard economic theory (Hosios 1990)
  - consistent with spirit of law (“promote maximum production”)
- given voluntary labor-force participation
  - consistent with standard economic interpretation (Rees 1957)
  - consistent with spirit of law (“promote employment opportunities for those able, willing, and seeking to work”)
- not NAIRU: employment mandate is not price mandate
- not NRU: average unemployment is not socially desirable
Computing Full Employment

- **Objective:** Minimize nonproductive use of labor \( u + v \)
  - Unemployment rate \( u \): labor devoted to jobseeking
  - Vacancy rate \( v \): labor devoted to recruiting
- **Subject to** hyperbolic Beveridge curve \( uv = A \)
  - Cannot reduce both \( u \) and \( v \)
- First-order condition gives solution:
  \[
  \frac{d[u + A/u]}{du} = 0 \Rightarrow 1 - A/u^2 = 0 \Rightarrow u = \sqrt{A}
  \]
- Solution is efficient unemployment rate: \( u^* = \sqrt{uv} \)
CRITERION FOR FULL EMPLOYMENT, EFFICIENCY

- full-employment, efficient unemployment rate is \( u^* = \sqrt{uv} \)
- economy is at full employment, efficient when \( u = u^* \)
  \( \rightsquigarrow \) efficient when \( u = \nu \)
- economy is above full employment, inefficiently tight when \( u < u^* \)
  \( \rightsquigarrow \) inefficiently tight when \( u < \nu \)
- economy is below full employment, inefficiently slack when \( u > u^* \)
  \( \rightsquigarrow \) inefficiently slack when \( u > \nu \)
LABOR MARKET IS GENERALLY TOO SLACK

Unemployment
Inefficiently slack
Vacancy
LABOR MARKET IS TOO TIGHT DURING WARS & PANDEMIC

Unemployment

World War 2

Korean War

Vietnam War

Coronavirus Pandemic

Vacancy

Share of labor force

0%
5%
10%
15%
20%
25%
30%

TIGHTNESS v/u SUMMARIZES STATE OF LABOR MARKET
TIGHTNESS v/u SUMMARIZES STATE OF LABOR MARKET
TIGHTNESS $v/u$ SUMMARIZES STATE OF LABOR MARKET
TIGHTNESS v/u SUMMARIZES STATE OF LABOR MARKET
CONSTRUCTION OF $u^*$

Unemployment $u$

Vacancy $v$
CONSTRUCTION OF $u^*$

$u^* = \sqrt{uv}$

Unemployment $u$

Vacancy $v$
$u^*$ REMAINS IN 2.5%–6.6%, AVERAGES 4.1%
UNEMPLOYMENT GAP $u - u^*$ IS COUNTERCYCLICAL
UNEMPLOYMENT GAP $u - u^*$ IS COUNTERCYCLICAL
CURRENT TARGET FOR MONETARY POLICY: $u^* = 4.5\%$
COMPARISON WITH OTHER UNEMPLOYMENT RATES

Unemployment rate $u^* = \sqrt{uv}$

NRU (CBO)
COMPARISON WITH OTHER UNEMPLOYMENT RATES

Unemployment rate
NAIRU (NY Fed)
\[ u^* = \sqrt{uv} \]
NRU (CBO)
\( u^* \) INCREASED SO MUCH IN 2020 BECAUSE OF SHIFT OF BEVERIDGE CURVE

\[ u^* = \sqrt{uv} \]
$u^*$ INCREASED SO MUCH IN 2020 BECAUSE OF SHIFT OF BEVERIDGE CURVE

Efficient: $u = v$

Inefficiently tight

Inefficiently slack

Unemployment rate

Vacancy rate

0%  4%  8% 12% 16%

2020Q1 2020Q2

2009Q3 2023Q3 2021Q2 2022Q2

2020Q2 2009Q3