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
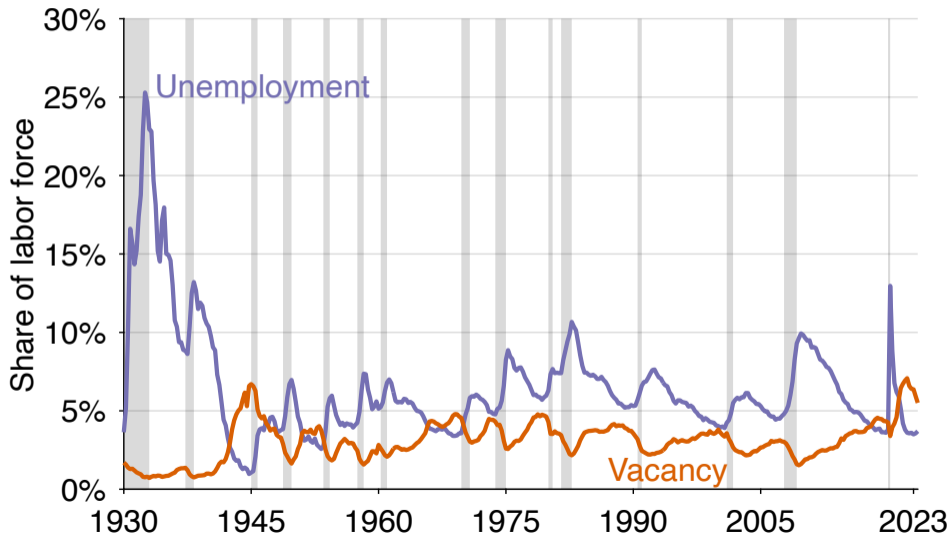- first-order condition gives solution:

$$\frac{d[u + A/u]}{du} = 0 \implies 1 - A/u^2 = 0 \implies u = \sqrt{A}$$

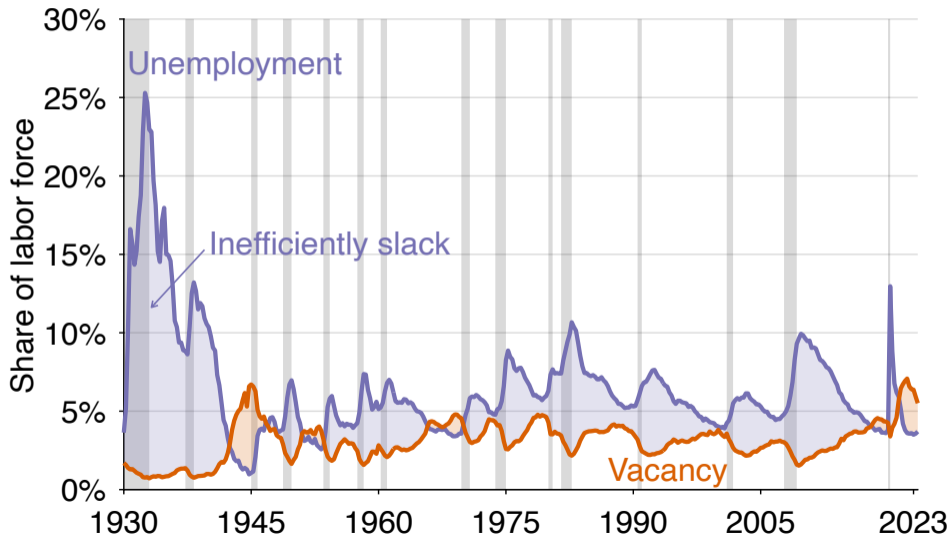- solution is efficient unemployment rate: $u^* = \sqrt{uv}$

CRITERION FOR FULL EMPLOYMENT, EFFICIENCY

- full-employment, efficient unemployment rate is $u^* = \sqrt{uv}$

- economy is at full employment, efficient when $u = u^*$

  ⤳ efficient when $u = v$

- economy is above full employment, inefficiently tight when $u < u^*$

  ⤳ inefficiently tight when $u < v$

- economy is below full employment, inefficiently slack when $u > u^*$
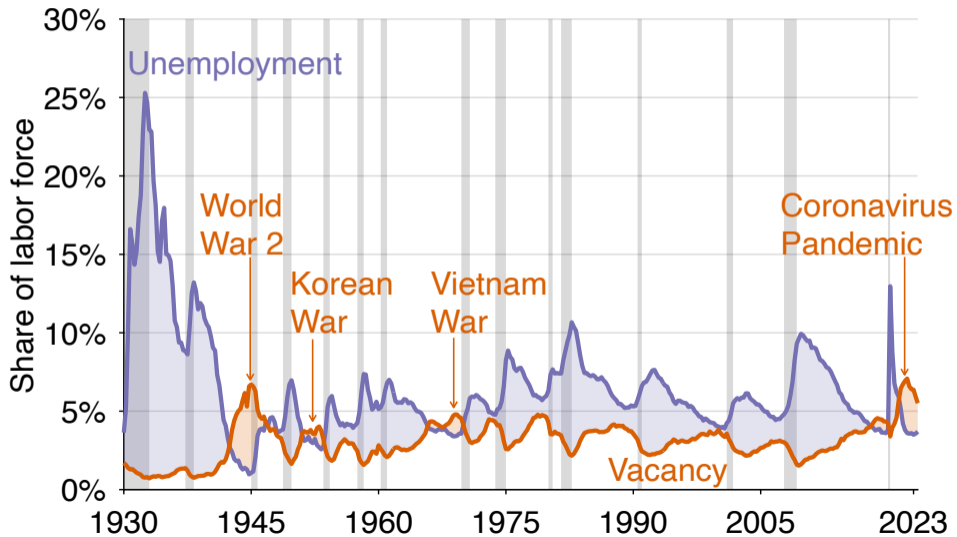
  ⤳ inefficiently slack when $u > v$

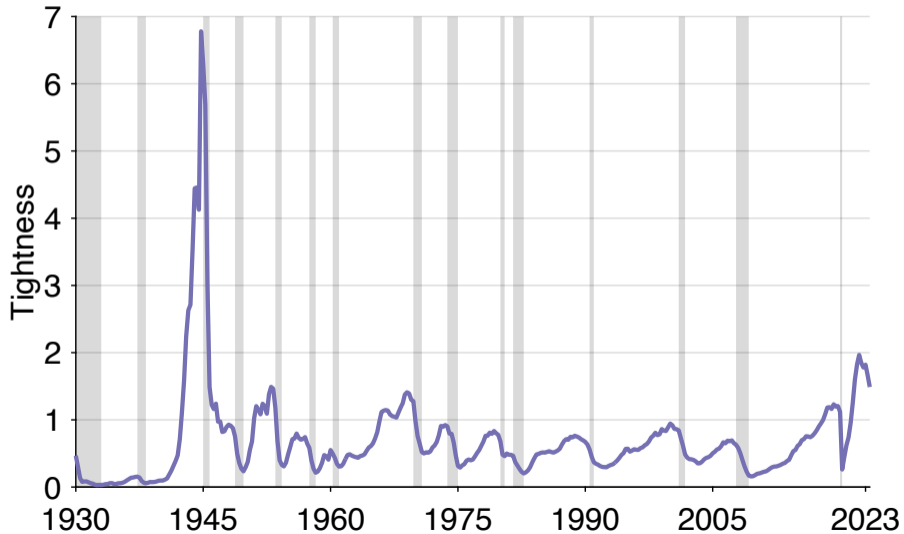UNEMPLOYMENT & VACANCY DATA FROM BLS, NBER, CONFERENCE BOARD

LABOR MARKET IS GENERALLY TOO SLACK

Share of labor force

Unemployment

Inefficiently slack

Vacancy

1930   1945   1960   1975   1990   2005   2023

LABOR MARKET IS TOO TIGHT DURING WARS & PANDEMIC

Chart showing Share of labor force from 1930 to 2023, with Unemployment and Vacancy lines. Labeled events: World War 2, Korean War, Vietnam War, Coronavirus Pandemic.

TIGHTNESS *v*/*u* SUMMARIZES STATE OF LABOR MARKET

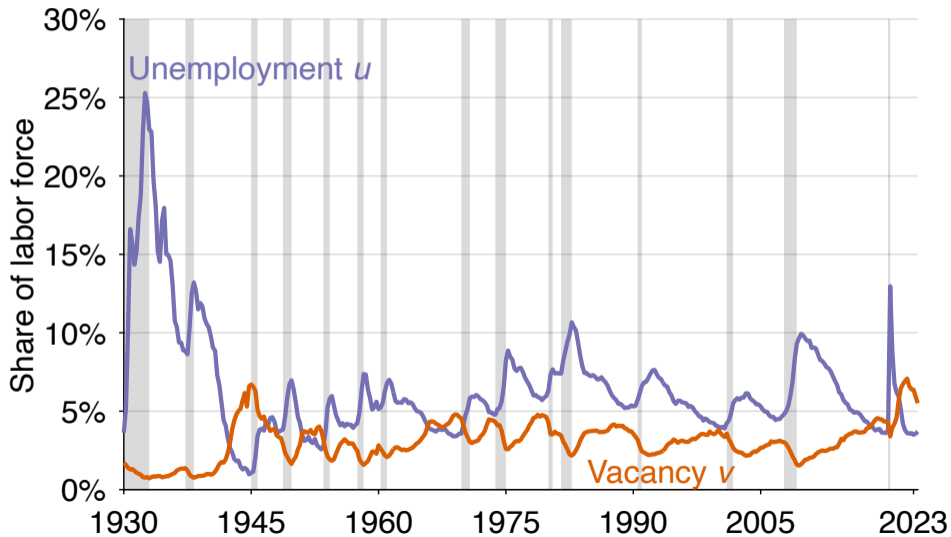# TIGHTNESS *v*/*u* SUMMARIZES STATE OF LABOR MARKET
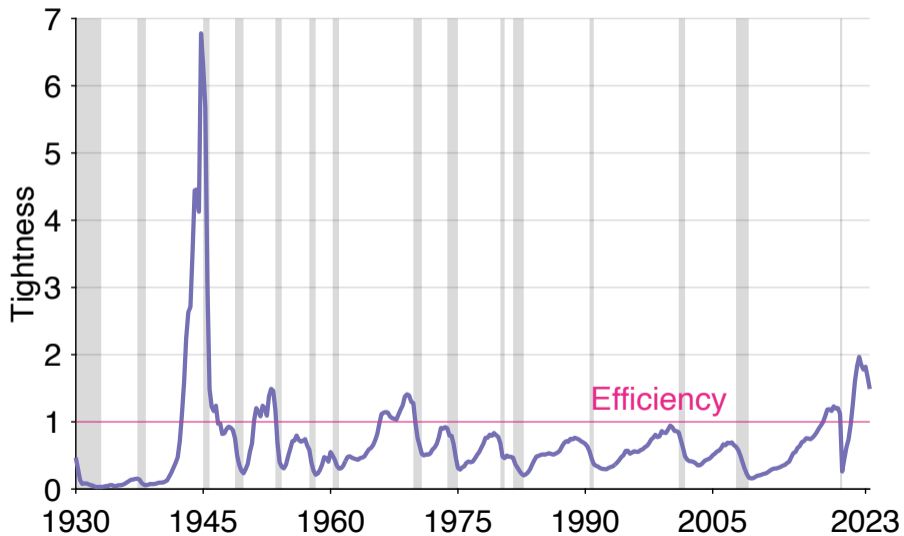
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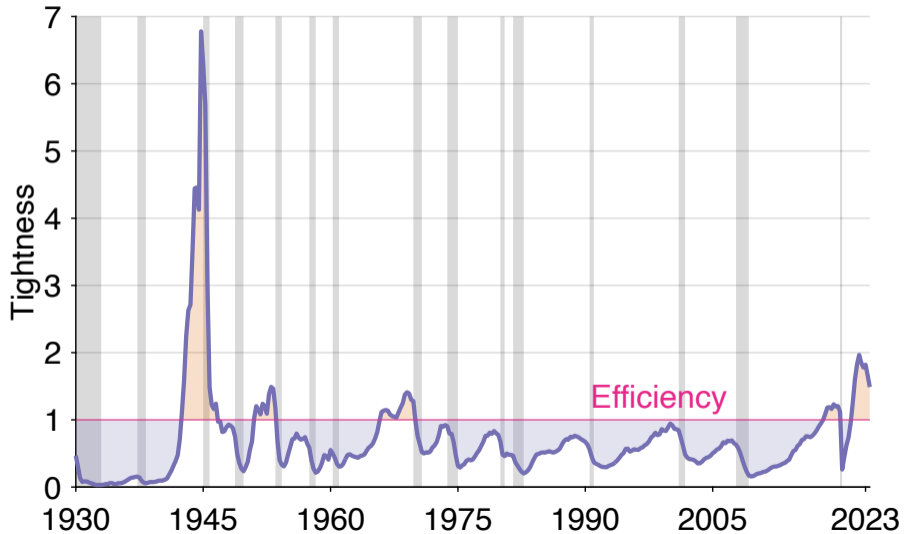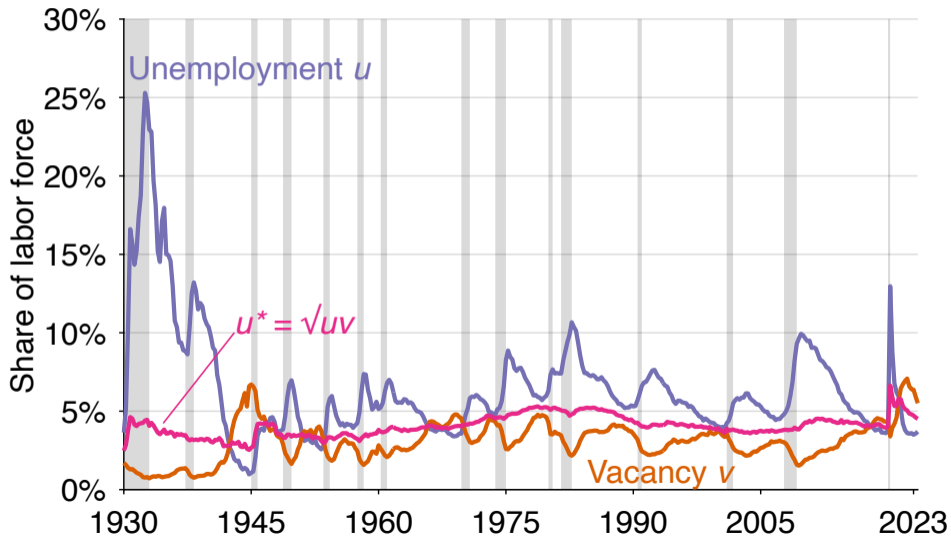
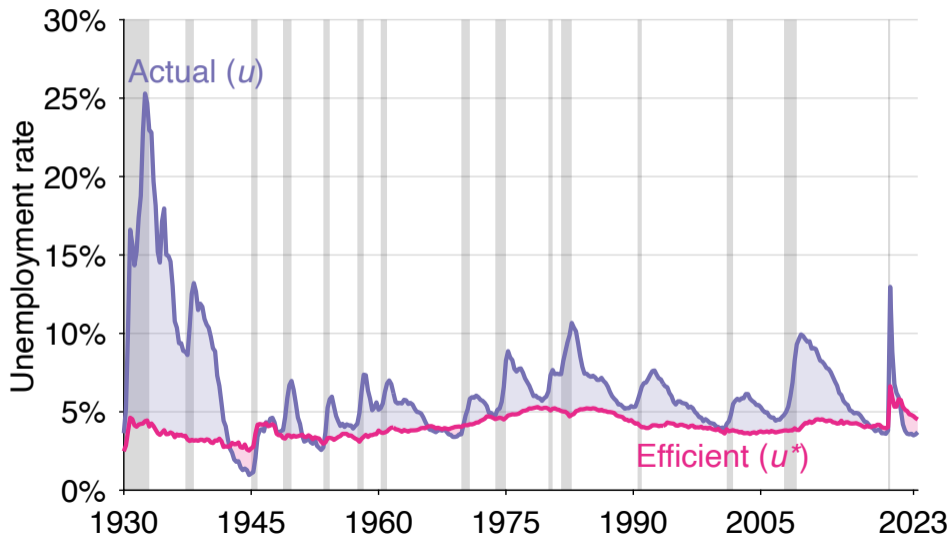# TIGHTNESS *v/u* SUMMARIZES STATE OF LABOR MARKET

CONSTRUCTION OF u^*

Unemployment u

$u^* = \sqrt{uv}$

Vacancy v
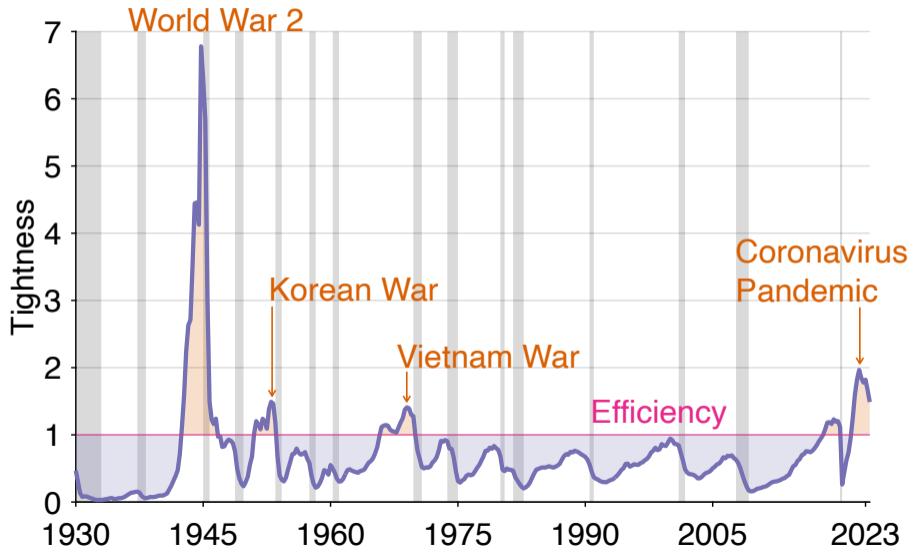
u^* REMAINS IN 2.5%–6.6%, AVERAGES 4.1%

Actual (u)

Efficient (u^*)

Unemployment rate

30%

25%

20%

15%

10%

5%

0%

1930   1945   1960   1975   1990   2005   2023

UNEMPLOYMENT GAP $u - u^*$ IS COUNTERCYCLICAL

+ 20.9pp

+ 5.9pp

+ 5.9pp

+ 6.3pp

Unemployment rate

30%

25%

20%

15%

10%

5%

0%

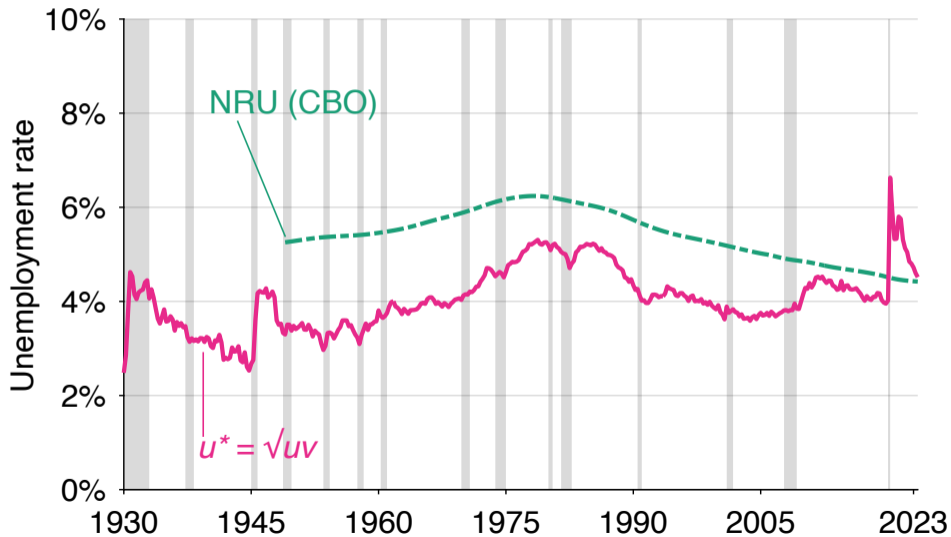1930   1945   1960   1975   1990   2005   2023
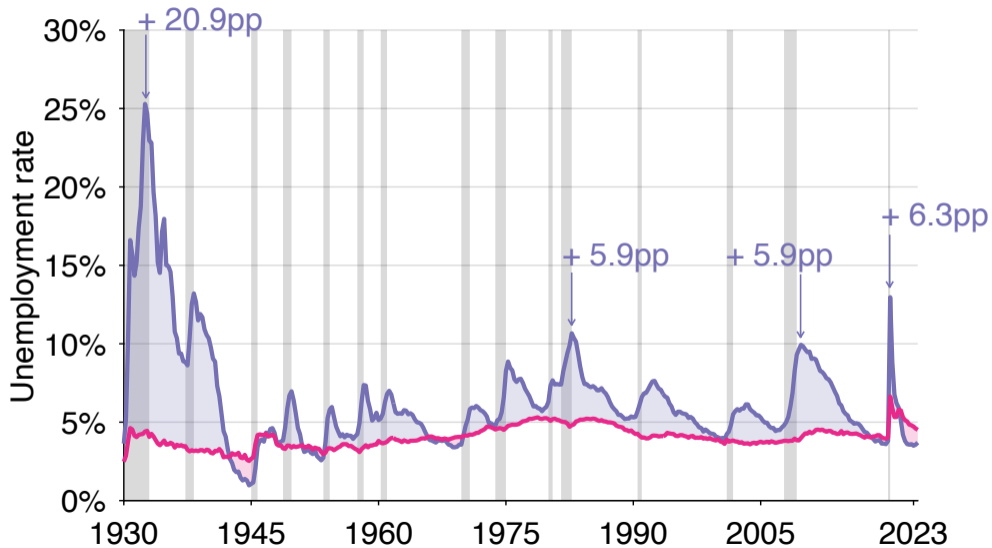
UNEMPLOYMENT GAP $u - u^*$ IS COUNTERCYCLICAL
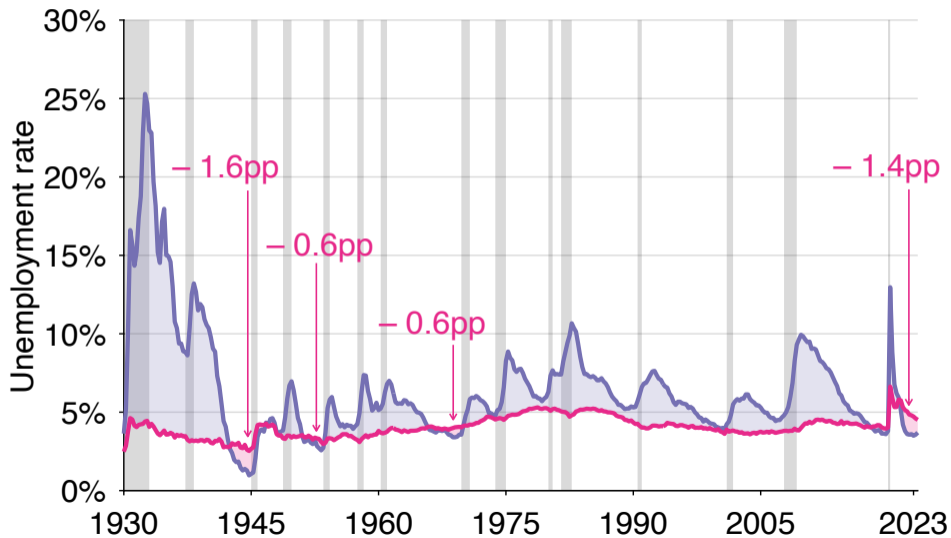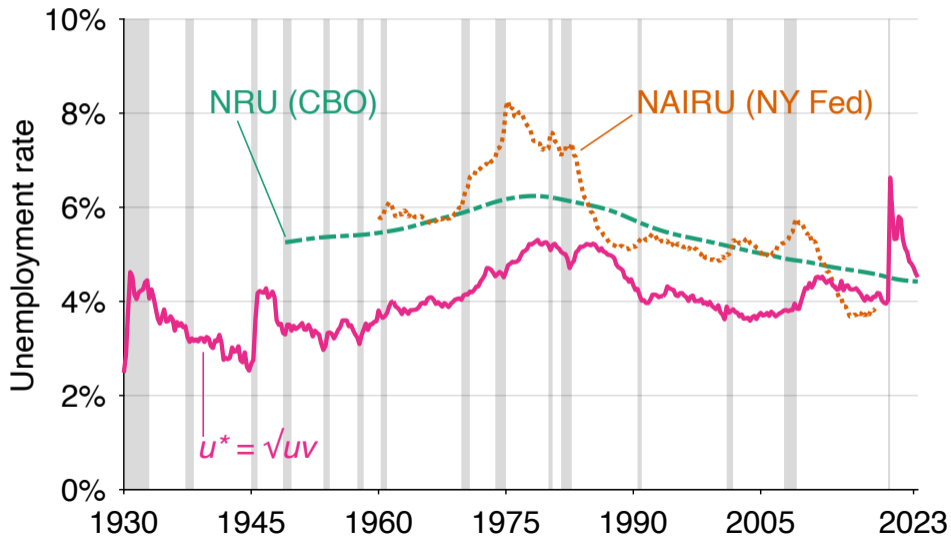
CURRENT TARGET FOR MONETARY POLICY: $u^* = 4.5\%$
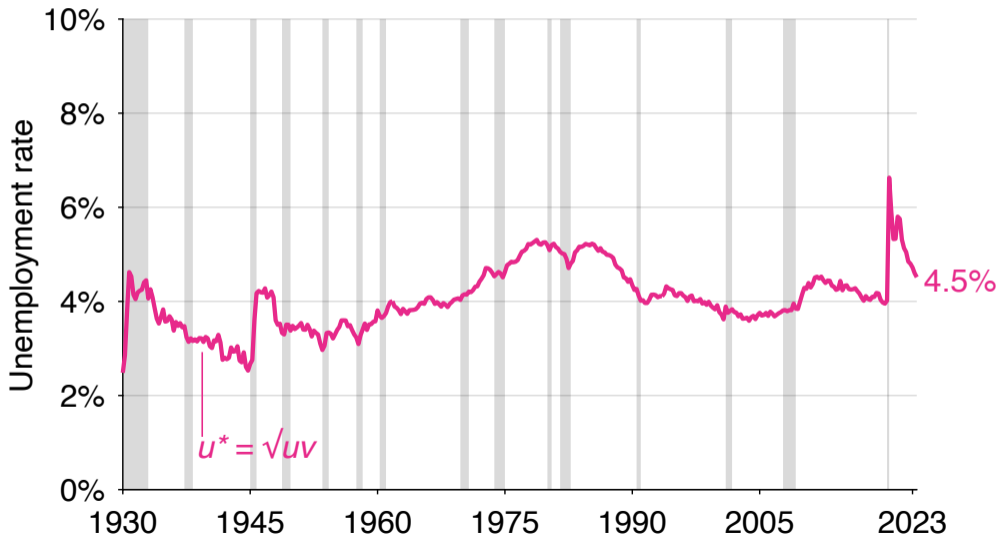
COMPARISON WITH OTHER UNEMPLOYMENT RATES

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NRU (CBO)

NAIRU (NY Fed)

Unemployment rate

$u^* = \sqrt{uv}$

u^* INCREASED SO MUCH IN 2020 BECAUSE OF SHIFT OF BEVERIDGE CURVE

Unemployment rate

6.6%

$u^* = \sqrt{uv}$

u^* INCREASED SO MUCH IN 2020 BECAUSE OF SHIFT OF BEVERIDGE CURVE