

# The Full-Employment Rate of Unemployment in the U.S.

by Michailat and Saez:

## Discussion

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This presentation has benefited from the insightful feedback of Stephanie Aaronson, Travis Berge, and Andrew Figura. The views expressed in this presentation are solely our own and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of any person associated with the Federal Reserve System.

# The Full Employment Rate of Unemployment (FERU)

## 1. Concept of Full Employment: *social efficiency*

- Minimizing the nonproductive use of labor—both job searches and recruiting—subject to the rectangular hyperbolic Beveridge curve.

## 2. Measurement $u^* = \sqrt{uv}$

- One person to fill one vacant job : Nonproductive use of labor =  $u + v$ .
- Labor force participation is acyclical.

## 3. Result:

- The labor market is efficient when  $u = v$  (the optimal market tightness  $v/u$  is 1).
- Unemployment rate has generally been above FERU (mean  $u^* = 4.1\%$  (1930-2024)).

## Novel characterization of $u^*$ : easy to implement!

1. **Theory**: Missing separation and higher elasticity of job seekers.
  2. **In Search of the E-star**: Recovering full employment and LFPR cyclicalilty
  3. **Broad-based & Inclusive FERU**: Importance of macro heterogeneity
- 
4. **Risk Management**: Uncertainty surrounding FERU
  5. **Conclusion: Are the Stars Aligning?**

# 1. Theory

## Separation and higher elasticity of U $\rightarrow$ Same observed U-V relationship but higher $u^*$

A two-state model with **unemployment inflows** (Insight shared by Andrew Figura)

(Fujita & Ramey (2009), Ahn & Crane (2020), Barlevy, Faberman, Hobijn and Şahin (2023), Figura & Waller (2024))

$$H = 0.3v^{0.3}u^{0.7} \quad \rightarrow \quad f = 0.3\left(\frac{v}{u}\right)^{0.3}$$

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②  $t_1 : v = 2, s = 1.75, f = 20, u = 8, \theta = 0.25 \Rightarrow$  Still rectangular hyperbola

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The social planner's problem:  $\min(u+v)$  s.t.  $0.3v^{0.3}u^{0.7} = H$ .

Now,  $\theta^* = 3/7 < 1 \Rightarrow$  Less tightness and higher FERU are optimal, because job seekers contribute more to a match than recruiters.

## **2. In Search of the E-Star:**

Level and Growth of Full Employment

## Recovering the Full Employment

- Employment-to-population (EPOP) Ratio : affected less by misclassification errors
- Payroll gains : measures the strength of labor demand

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## Level of Full Employment (FEEP)

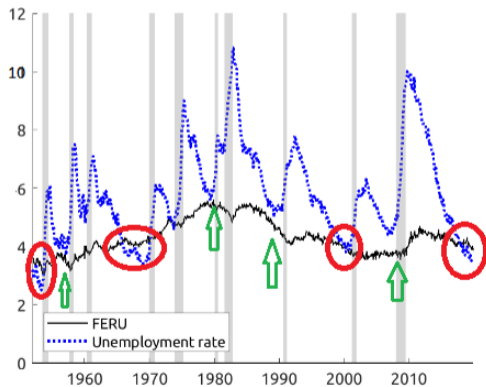
$$\text{FEEP (t)} = [(1 - u_t^*) \times \text{LFPR-Trend}_t \times \text{Population}_t]$$

LFPR-Trend from Hornstein and Kudlyak (2019).

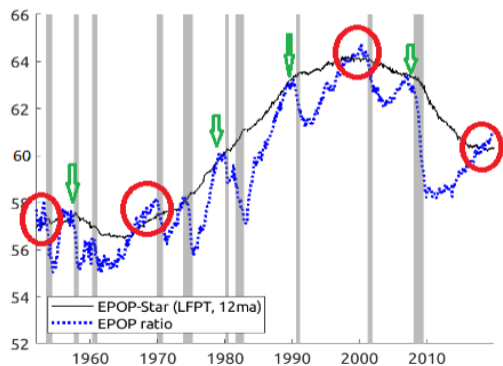
# FEEP indicates less slack than FERU: LFPR cyclicalty

- **Green** : FEEP signals at or above FE unlike FERU; **Red** : Both FE. Indicator
- **FEEP** : Labor market tends to reach FE in a mature expansion.

A. FERU (1951-2019)

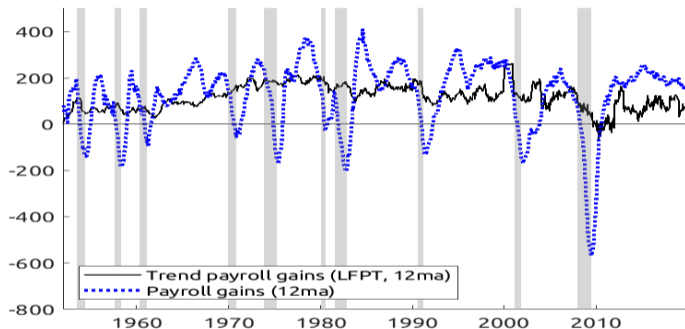


B. FEEP (1951-2019)



# FEEP growth can serve as a cyclical benchmark

Gains in FEEP and Payrolls (1952-2019, thousand)

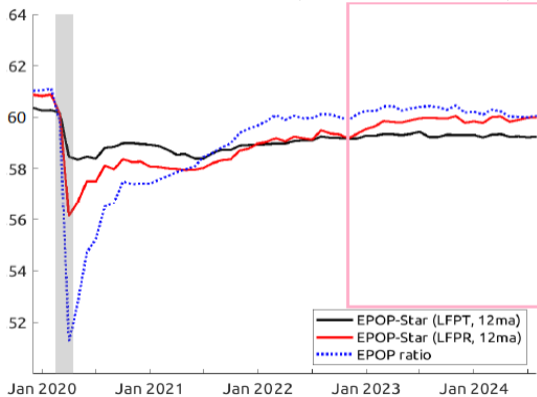


- In a mature expansion, payroll gains  $\approx$  FEEP gains.
- During a recession and the immediate recovery, payroll gains  $<$  FEEP gains.
- After the recovery and during an expansion, payroll gains  $>$  FEEP gains.

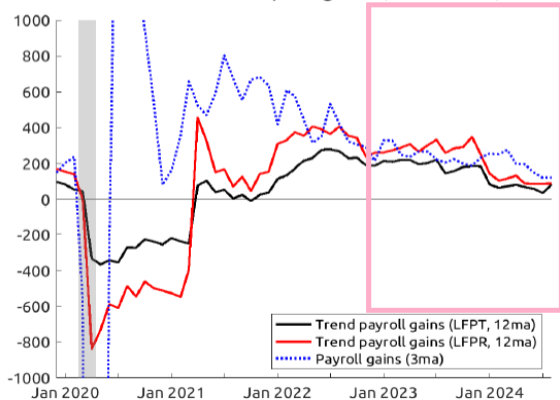
# From 2023, Both FERU and FEFP Suggest Full Employment

- Uncertainty about LFPR in recent years due to immigration
- Uncertainty about payroll employment

A. FEFP and EPOP ratio (2020M1 - 2024M8)



B. FEFP and Payroll gains (thousands)



### **3. Broad-based & Inclusive FERU:** Macro Heterogeneity



# Broad-based and Inclusive FERU : Macro Heterogeneity

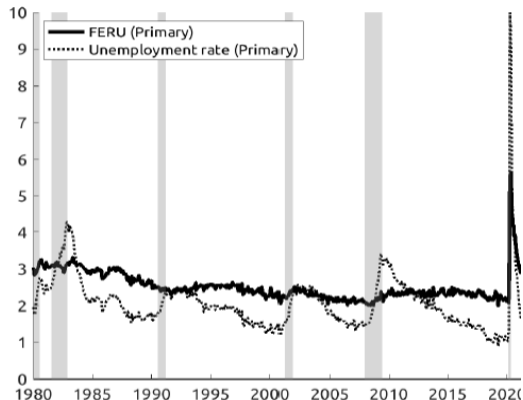
*US labor market  $\approx$  Dual labor market + Tertiary segment (Ahn, Hobijn, and Şahin, 2023)*

- ① **Primary** (55% of population) : **2 %** unemployment rate
  - 85% of employment, 81% of labor force, 25% of unemployment.
- ② **Secondary** (14%) : **26 %** unemployment rate
  - 60 % of unemployment
- ③ **Tertiary** (31%) : **20 %** unemployment rate
  - Mostly out of the labor force, bulk of nonparticipation.

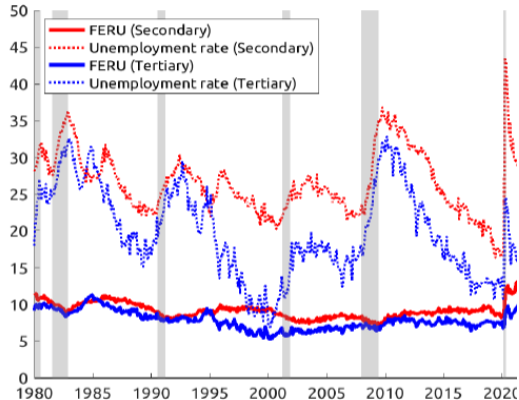
Calculate the FERU for each market based on the same formula.

# FERU May Not Represent Anyone's Full-Employment Experiences

A. Primary (1980M1 - 2020M12)



B. Secondary and Tertiary (1980M1 - 2020M12)

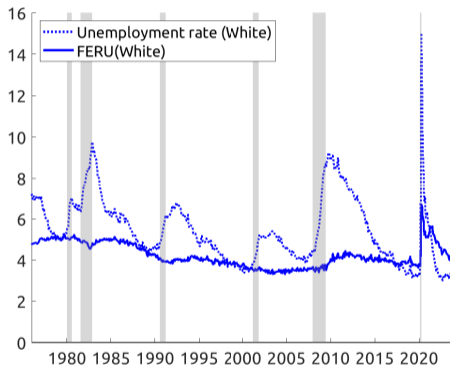


- Primary segment **rarely** experiences slack, but the others are **always** in slack.
- Perhaps different models are needed for the inclusive FERU.

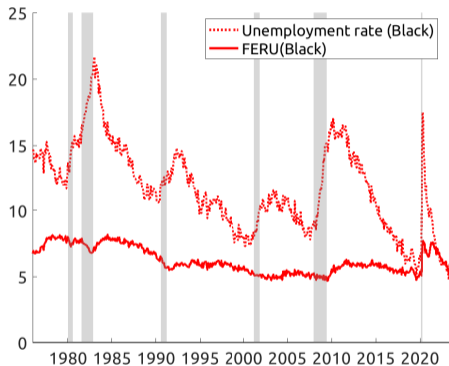
# Racial Disparities in the Experience of Full Employment

Insight shared by Stephanie Aaronson

A. Whites (1976 - 2023)



B. Blacks (1976 - 2023)

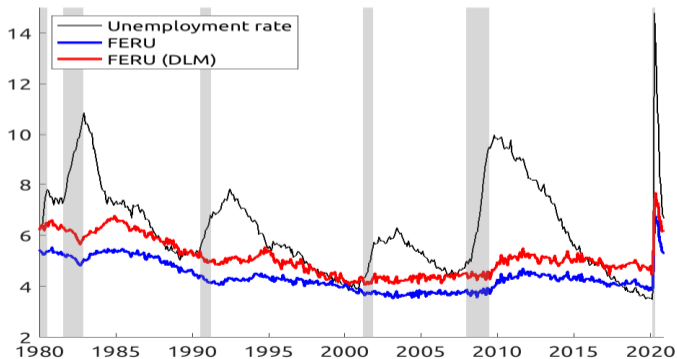


- Whites experienced full employment during most mature expansions.
- Blacks **never** experienced full employment until 2019.

# FERU with Heterogeneity Suggests Less Slack than FERU

- FERU with heterogeneity: Each segment's FERU weighted by segment population
- Weighted racial FERU  $\approx$  Baseline FERU

FERU with Heterogeneity and FERU (1980-2020)



# Important and Useful Research! Risk Assessment and Next Step

Less slack than what's implied by FERU

- Job separation & higher elasticity of U
- FEEP : LFPR cyclical
- Macro heterogeneity

More slack than what's implied by FERU

- Measurement errors in the CPS Bias

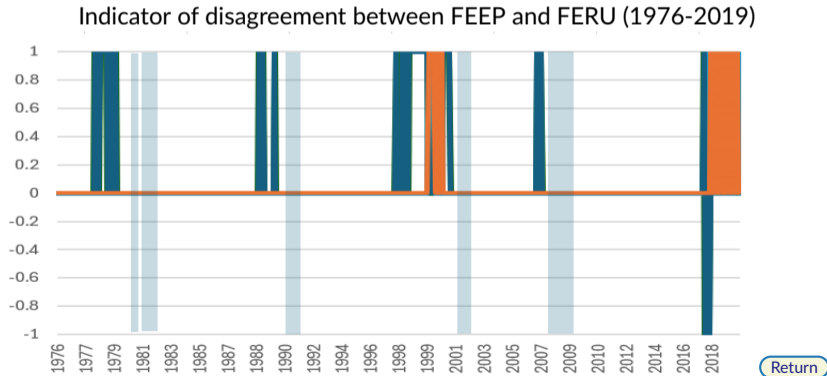
Stars are aligning ?! Wage gap

- FERU may be more precisely identified in a multivariate model or a GE set-up.
- FERU, NAIRU and NRU may have common empirical features → Triple coincidence?

# Appendix

## FEEP indicates less slack than FERU: LFPR cyclicalty

- **Turquoise** : FEEP signals at or above FE unlike FERU. **Orange** : Both suggest FE.
- Demand in a mature expansion brings non-participants at the margin of the labor force into job-seeker pool → ↑ LFPR, RU, and the discrepancy between FEEP and FERU.



## **4. Risk Management:**

Uncertainty surrounding FERU

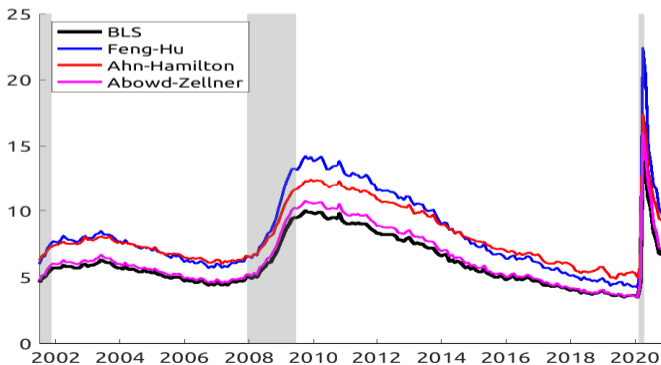


# Data Measurement Errors and the Resilience of FERU

- Declining response rates : JOLTS  $\approx$  30% from 2022:H2 Response Rates
- CPS: Misclassification, Rotation group bias, and Missing individuals

(Abowd & Zellner (1985); Ahn & Hamilton (2020); BLS; Elsby, Hobijn & Şahin (2015); Feng & Hu (2013))

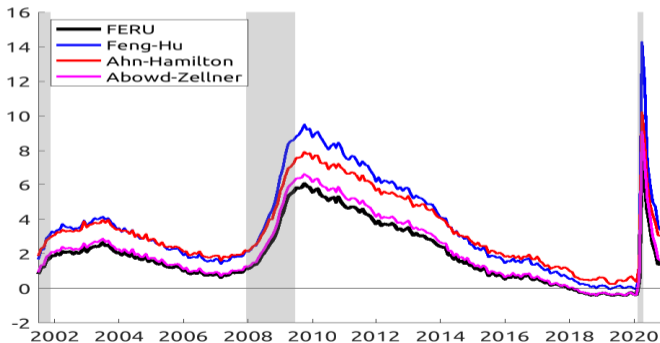
Bias-Adjusted Unemployment Rate (2001M7-2020M12)



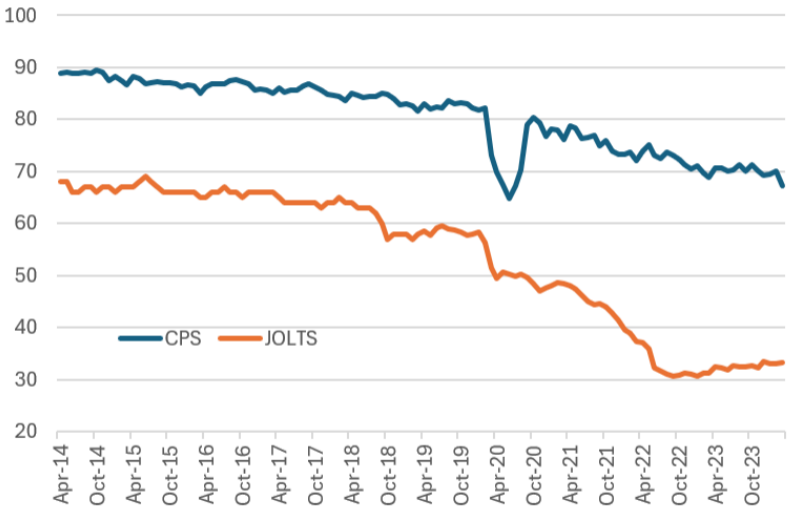
## Bias-adjusted FERU Suggests More Slack than FERU

- Feng-Hu (2013) and Ahn-Hamilton (2020) suggest larger unemployment-rate gap → Risk of understating slack due to data biases. [Return](#)

Unemployment-rate Gap with Bias-Adjusted Measures (2001M7-2020M12)



# Response Rates of CPS and JOLTS



Source: BLS [Return](#)

# Aligning Stars: Wage Inflation Gap as Corroborating Evidence

The wage gap and the FEET gap are aligning. [Return](#)

- Wage gap = Growth rate of average hourly earnings - Trend Inflation (FRBNY's MCT)
- Robust to the inclusion of labor productivity trend (hp-filtered).

