BEVERIDGEAN UNEMPLOYMENT GAP

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RESEARCH QUESTIONS

Does the labor market operate efficiently?

If not, how far from efficiency is it?

- sufficient statistics for the unemployment gap
  - elasticity of Beveridge curve
  - social cost of unemployment
  - cost of recruiting

MOTIVATION

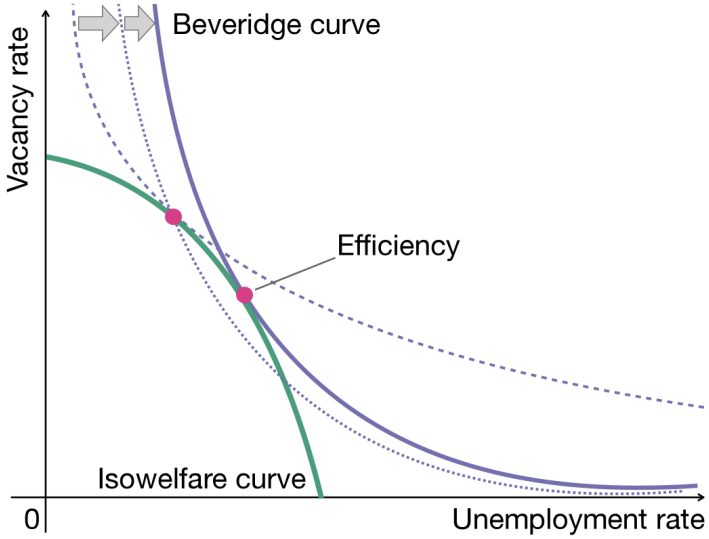
Existing measures of the unemployment gap:

- Difference between the unemployment rate and its trend
- Difference between the unemployment rate and the non-accelerating-inflation rate of unemployment (NAIRU)

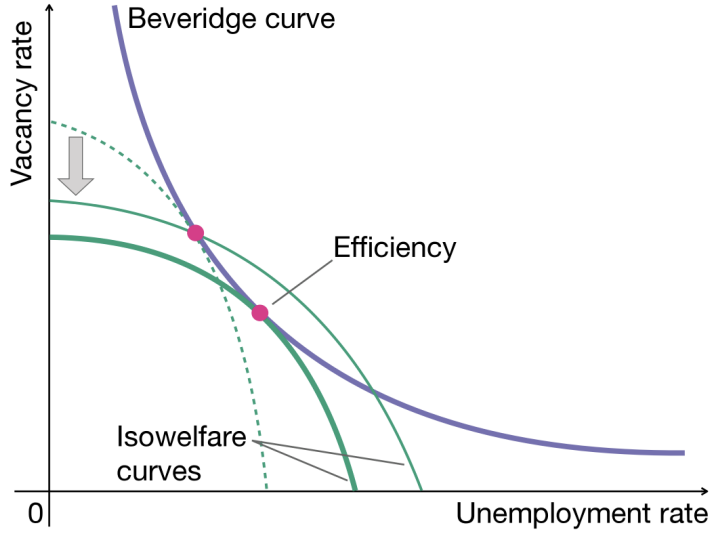
Neither of this measures efficient unemployment

Main idea of this paper: to solve the problem of a social planner who allocates labor between production, recruiting, and unemployment subject to the Beveridge curve. Then express the efficient unemployment rate as a function of three sufficient statistics.

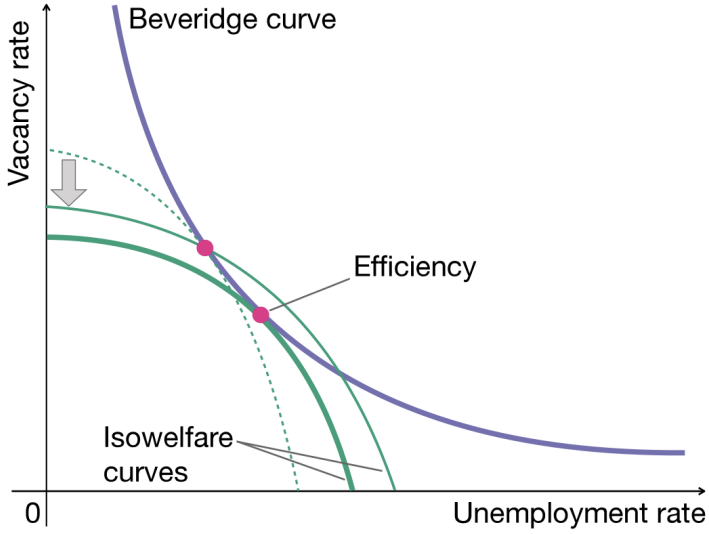
DIAGRAM ILLUSTRATION



A. Compensated increase in Beveridge elasticity



B. Increase in social value of nonwork



C. Increase in recruiting cost

THREE SUFFICIENT STATISTICS

- Beveridge Elasticity

$$\epsilon = -\frac{dln(v(u))}{dln(u)} = -\frac{u}{v} \cdot v'(u)$$

- Social welfare

$$\omega(n, u, v) = p(n + zu - cv)L$$

- Recruiting cost

$$\kappa = -\frac{\frac{\partial \omega}{\partial v}}{\frac{\partial \omega}{\partial n}}$$

- Efficient unemployment

$$\theta = \frac{1 - \zeta}{\kappa\epsilon},\ u^* = \left(\frac{\kappa\epsilon}{1 - \zeta} \cdot \frac{v}{u^{-\epsilon}}\right)^{1/(1+\epsilon)}$$

DMP MODEL APPLICATION

- Unemployment dynamics

$$\dot{u(t)} = \lambda[1 - u(t)] - m(u(t), v(t))$$

- Beveridge elasticity

$$\epsilon = \frac{1}{1-\eta}(\eta + \frac{u}{1-u})$$

- Social value of nonwork and recruiting cost

$$\zeta = z,\ \kappa = c$$

- Efficient tightness (derived from efficient condition in terms of parameters of the DMP model

$$\eta\theta^* + \frac{\lambda}{q(\theta^*)} = (1-\eta)\frac{1-z}{c}$$

UNEMPLOYMENT GAP IN THE UNITED STATES, 1951-2019

$$u^* = (\frac{\kappa\epsilon}{1-\zeta} \cdot \frac{v}{u^{-\epsilon}})^{1/(1+\epsilon)}$$

Beveridge elasticity

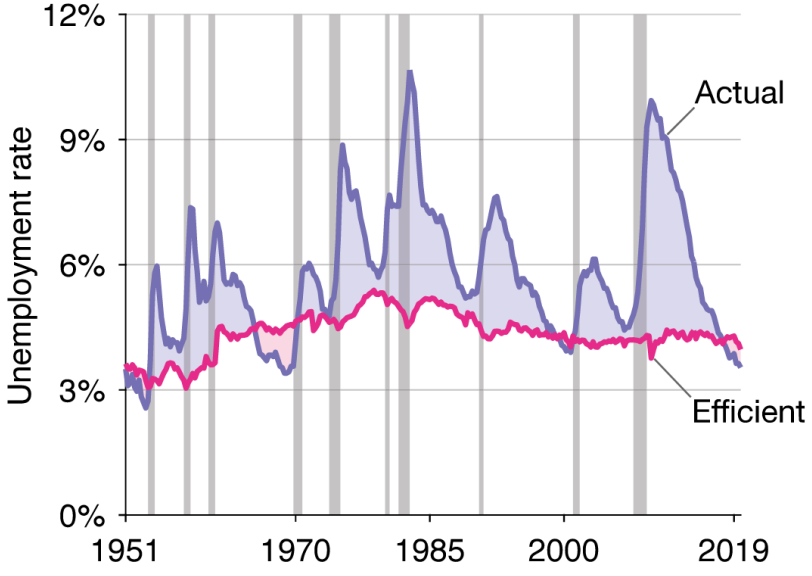
$$ln(v(t) = ln(\alpha_j - \epsilon_j \cdot ln(u(t)) + z(t), t = T_{j-1} + 1, ...T_j$$

Social value of nonwork: Revealed preference estimates

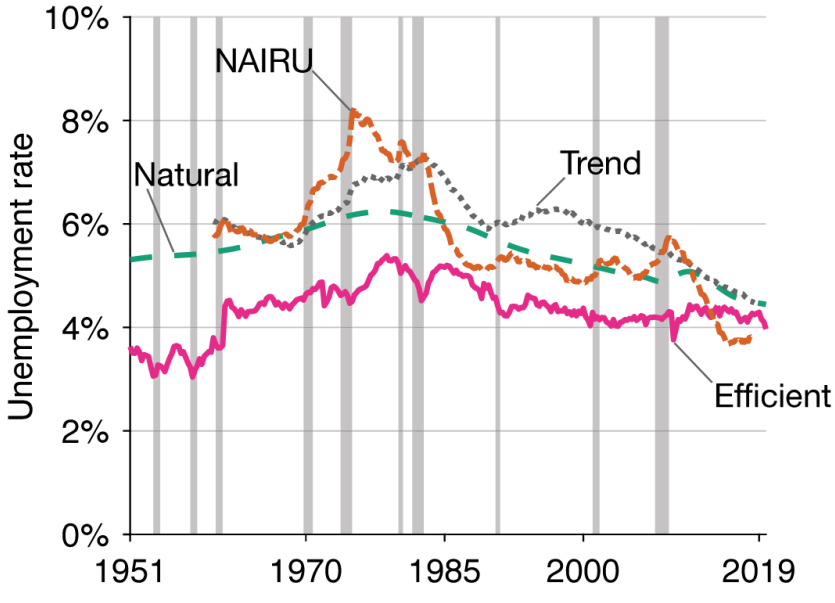
$$\eta = 0.26$$

Recruiting costs: As in matching models, the recruiting cost is usually assumed to be constant over time remained at its 1997 value, from 1951 to 2019: $\kappa = 0.92$

PROPOSED EFFICIENT UNEMPLOYMENT AND ALTERNATIVE UNEMPLOYMENT



B. Efficient unemployment rate



D. Alternative unemployment rates