

Econ 182

Notes (Oct, 2nd.)

The following questions are related to the first 2 videos (Introduction):

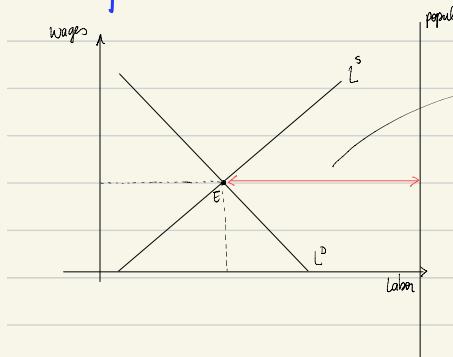
- 1) Why is unemployment costly? What are the evidences that tell us that it is a big social problem?

In surveys designed to assess whether people are happy with their lives, the unemployed report a much lower level of happiness as opposed to employed people. This fact still holds true when we control for income, which also affects well-being.

What about the reverse causality?

We could infer that having a poor mental health management is the root cause for losing one's job. This hypothesis is rejected by a panel data (Winkelmann², 1998) from Germany that tracks the happiness level with time while focusing at the event of losing one's job.

- 2) Why do we need a new model to study and understand unemployment?



Unemployment is an involuntary situation.

The traditional models cannot capture essential details about unemployment, such as labor market tightness, job vacancy rate, job finding rate, among others.

WEEK 3 (Thursday)

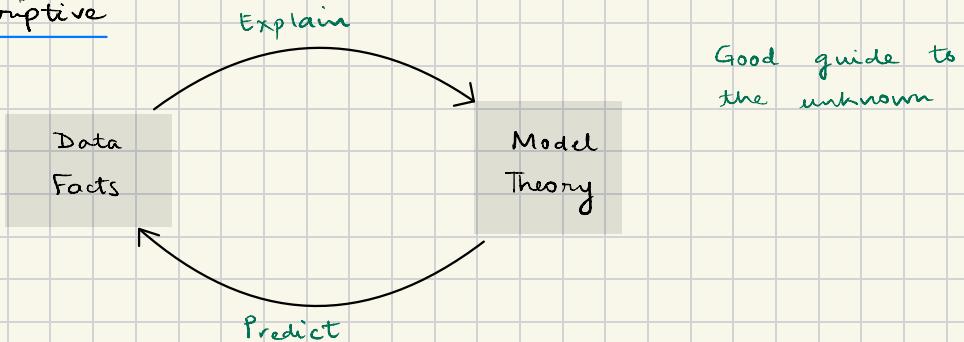
23rd Jan, 2025

- ① Model has to be economical.

Example: Supply & Demand models (housing market)

Addition of more facts → More complex model

- ② Descriptive



Economics

- ① Classical models (markets work very well)
- ② Keynesian models (labor markets may not clear)
- ③ RBC models
- ④ New Keynesian models

U : # job seekers (CPS)
 V : # job vacancies (JOLTS)

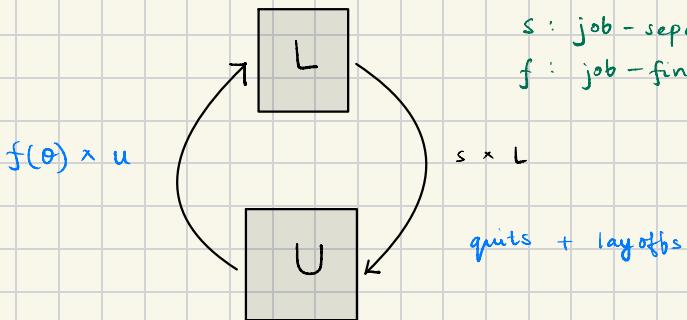
→ 3000 firms/month

BLS → survey of samples

↑
representative

Notation : u (small) is a rate.

In model



s : job - separation rate

f : job - finding rate

$$s \times L$$

quits + layoffs

s : parameter / exogenous variable

$f(\theta)$: endogenous variable

BALANCED FLOWS (Assumption) : $f(\theta) \times U = s \times L$



L & U are fixed over time.

If no balanced flows, dynamics.

$$L + U = H$$

employed unemployed labor force (fixed)

$$L = H - U$$

$$\text{so, } f(\theta) \times U = s \times (H - U)$$

$$\Rightarrow sH = (f + s) \times U$$

$$\Rightarrow U = \frac{s}{f+s} H$$

unemployed

$$\text{unemployment rate : } u = \frac{U}{H} = \frac{s}{f+s}$$

COMPARATIVE : If $f \uparrow$, $u \downarrow$.

STATICS If $s \uparrow$, $u \uparrow$.

Matching Function: $m(U, V)$

job finders : M

$$M = m(U, V)$$

Job-finding rate: $f = \frac{M}{U}$ probability of finding a job

$$\frac{\# \text{ Matches}}{\# \text{ people looking for jobs}}$$

m has CRS (constant returns to scale)

$$f = \frac{m(U, V)}{U} = m\left(\frac{U}{U}, \frac{V}{U}\right) = m(1, \theta)$$

\curvearrowright CRS \curvearrowright
 $\theta = \frac{V}{U}$

LABOR SUPPLY $L^S(\theta)$

$$L^S(\theta) = (1 - u) H$$

\uparrow

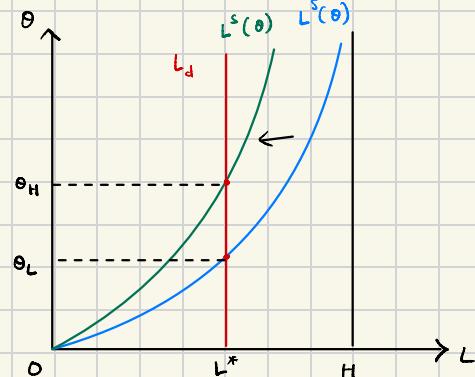
people who have been able to find a job unemployment rate

$$\begin{aligned} L^S(\theta) &= \left(1 - \frac{s}{s + f(\theta)}\right) H \\ &= \frac{f(\theta)}{s + f(\theta)} H \end{aligned}$$

$$\begin{aligned} f(\theta) &= 0 && \text{No vacancies} \\ \Rightarrow L^S(\theta) &= 0 \end{aligned}$$

$$\lim_{\theta \rightarrow \infty} f(\theta) = \infty$$

$$\lim_{\theta \rightarrow \infty} \frac{f(\theta)}{s + f(\theta)} = 1$$



When $s \uparrow$, $L^S(\theta)$ shifts inward for a given θ .

RECRUITER - PRODUCER RATIO

$$L = R + N$$

recruiters producers

$$\underbrace{s \times L}_{\substack{\text{leave} \\ \text{the} \\ \text{firm}}} = \# \text{ of job-leavers}$$

$$= \# \text{ of jobs to be filled}$$

$$V = \underbrace{V}_{\substack{\# \text{ of vacancies} \\ \text{arrive to firm}}} \times \underbrace{q(\theta)}_{\substack{\text{probability} \\ \text{vacancy} \\ \text{is filled}}}$$

$$V = \frac{s}{q(\theta)} \times L$$



$$R = r \times V = \frac{r \times s}{q(\theta)} \times L = \# \text{ recruiters needed}$$

$$\Rightarrow R = \frac{r \times s}{q(\theta)} \times (R + N) \quad [L = R + N]$$

$$\Rightarrow R \left(1 - \frac{rs}{q(\theta)} \right) = \frac{rs}{q(\theta)} N$$

$$\Rightarrow \frac{R}{N} = \frac{rs}{q(\theta) - rs} = \tau(\theta)$$

$$q(\theta) = \frac{M}{V} = \frac{m(U, V)}{V} = m\left(\frac{U}{V}, 1\right) = m\left(\frac{1}{\theta}, 1\right)$$

$\tau(\theta)$ is increasing in θ .

It's fine to assume capital is fixed in this model because it is a shorter time horizon (2-3 years / business cycle).

The Solow model is for a far longer time horizon.