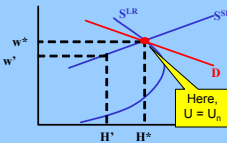


Unemployment and Business Cycles



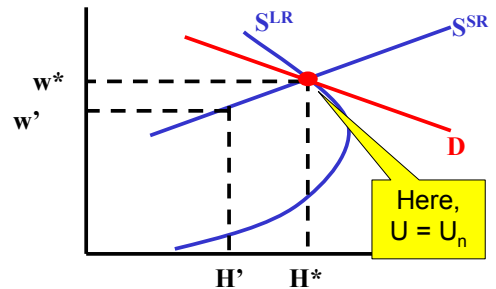
Counter-Cyclical and Pro-Cyclical Indicators

Business Failures	Counter-Cyclical
New Business Starts	Pro-Cyclical
Unemployment	Counter-Cyclical
Average Work Week	Pro-Cyclical
Average Wage Rate	Pro-Cyclical
Capital Utilization	Pro Cyclical
GDP	Pro-Cyclical

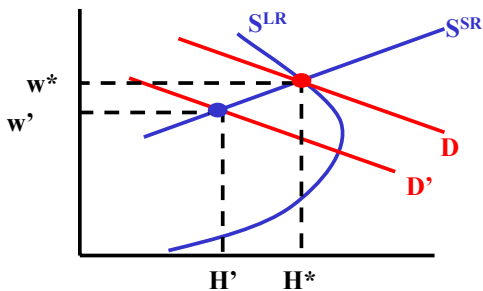
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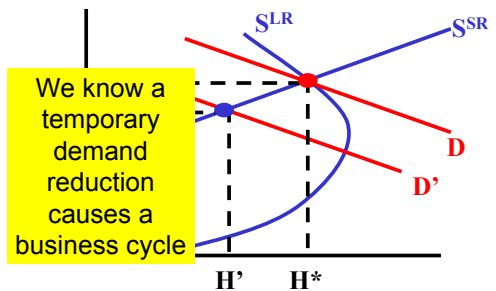
A Change in Demand



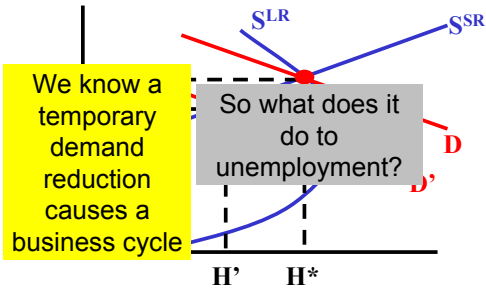
A Change in Demand



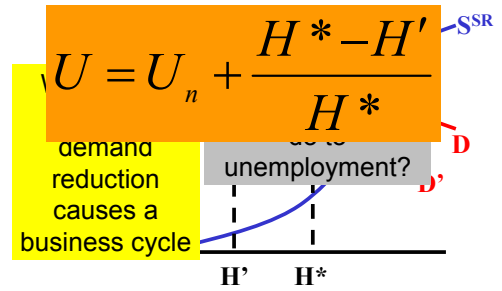
A Change in Demand



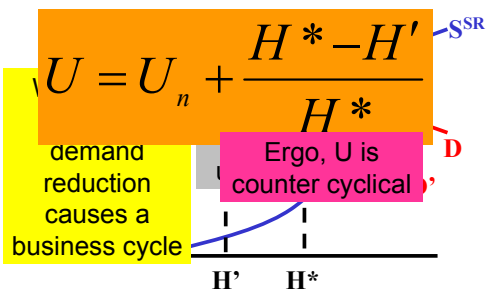
A Change in Demand



A Modest Proposal



A Modest Proposal



The Formal Relation

- GDP
 - Actual GDP = what you think it is
 - Potential GDP = GDP when $U = U_n$

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- GDP
 - Actual GDP = what you think it is
 - Potential GDP = GDP when $U = U_n$
- Employment
 - Actual Employment = $CLF(1-U)$
 - Potential Employment = $CLF(1-U_n)$

GDP and Unemployment

$$GDP_{Actual} = A_t K_t^{\frac{1}{3}} [CLF(1-U)]_t^{\frac{2}{3}}$$

Potential GDP & the Natural Rate

$$GDP_{Potential} = A_t K_t^{\frac{1}{3}} [CLF(1 - U_n)]_t^{\frac{2}{3}}$$

GDP and Unemployment

$$GDP_{Potential} = A_t K_t^{\frac{1}{3}} [CLF(1 - U_n)]_t^{\frac{2}{3}}$$

$$GDP_{Actual} = A_t K_t^{\frac{1}{3}} [CLF(1 - U)]_t^{\frac{2}{3}}$$

The Relation

$$\frac{GDP_{Potential} - GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{2}{3}\right)(U - U_n)$$

Unemployment and GDP

$$U \cong U_n + 1.5 \frac{GDP_{Potential} - GDP_{Actual}}{GDP_{Actual}}$$

An Illustration

$$\frac{GDP_{Potential} - GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{2}{3}\right)(U - U_n)$$

GDP is \$10 trillion; $U_n = 4\%$; $U = 7\%$

An Illustration

$$\frac{GDP_{Potential} - \$10}{\$10} \cong \left(\frac{2}{3}\right)(7 - 4)$$

$$GDP_{Potential} = \$10.2 \text{ Trillion}$$

GDP is \$10 trillion; $U_n = 4\%$; $U = 7\%$

A Second Illustration

$$\frac{GDP_{Potential} - GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{2}{3}\right)(U - U_n)$$

GDP grew from \$10 Trillion to \$10.45 Trillion
What will happen to U?

A Second Illustration

$$\frac{\Delta GDP_{Potential}}{GDP_{Potential}} + \frac{\Delta GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{2}{3}\right)\Delta U$$

GDP grew from \$10 Trillion to \$10.45 Trillion
What will happen to U?

A Second Illustration

$$\frac{\Delta GDP_{Potential}}{GDP_{Potential}} \cong 3.5\% \text{ a year}$$

$$\frac{\Delta GDP_{Potential}}{GDP_{Potential}} + \frac{\Delta GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{2}{3}\right)\Delta U$$

GDP grew from \$10 Trillion to \$10.45 Trillion
What will happen to U?

A Second Illustration

$$3.5\% - 4.5\% \cong \left(\frac{2}{3}\right)\Delta U$$

$$\Delta U = -1.5\%$$

GDP grew from \$10 Trillion to \$10.45 Trillion
What will happen to U?

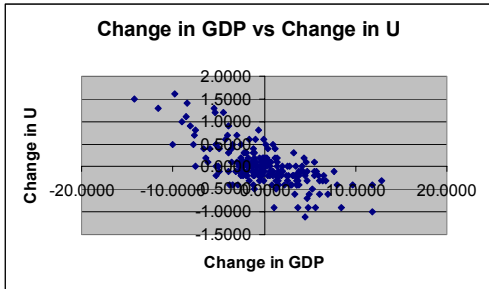
Okun's Law

$$\frac{GDP_{Potential} - GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{2}{3}\right)(U - U_n)$$

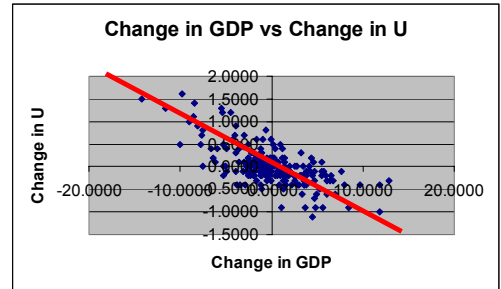
Okun's Law

$$\frac{GDP_{Potential} - GDP_{Actual}}{GDP_{Actual}} \cong \left(\frac{1}{2}\right)(U - U_n)$$

The Facts



The Facts



End

Unemployment data from
BLS, GDP data from Dept of
Commerce

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