

LECTURE 20

MATCHING | UNEMPLOYMENT TYPES

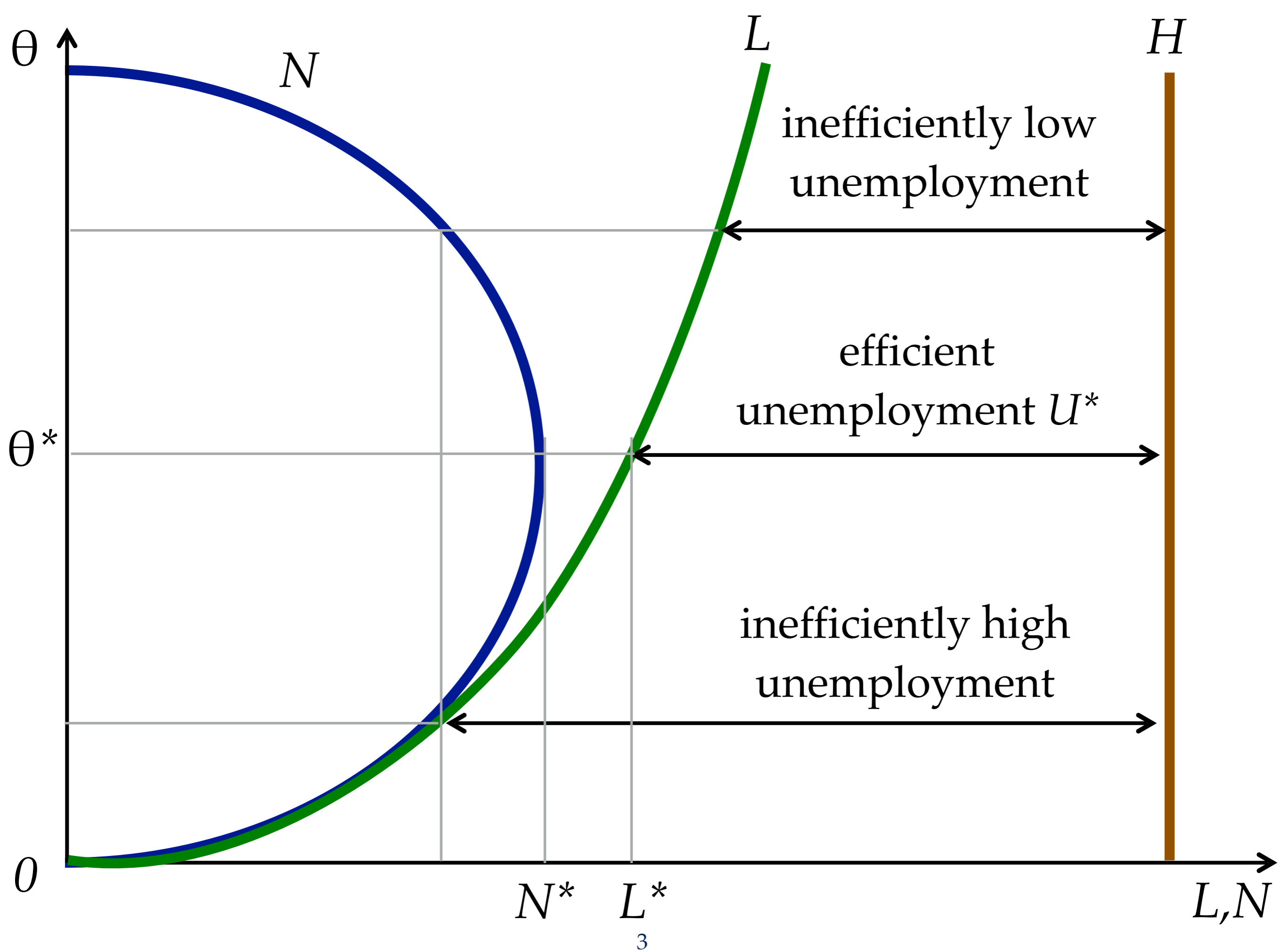
Pascal Michailat

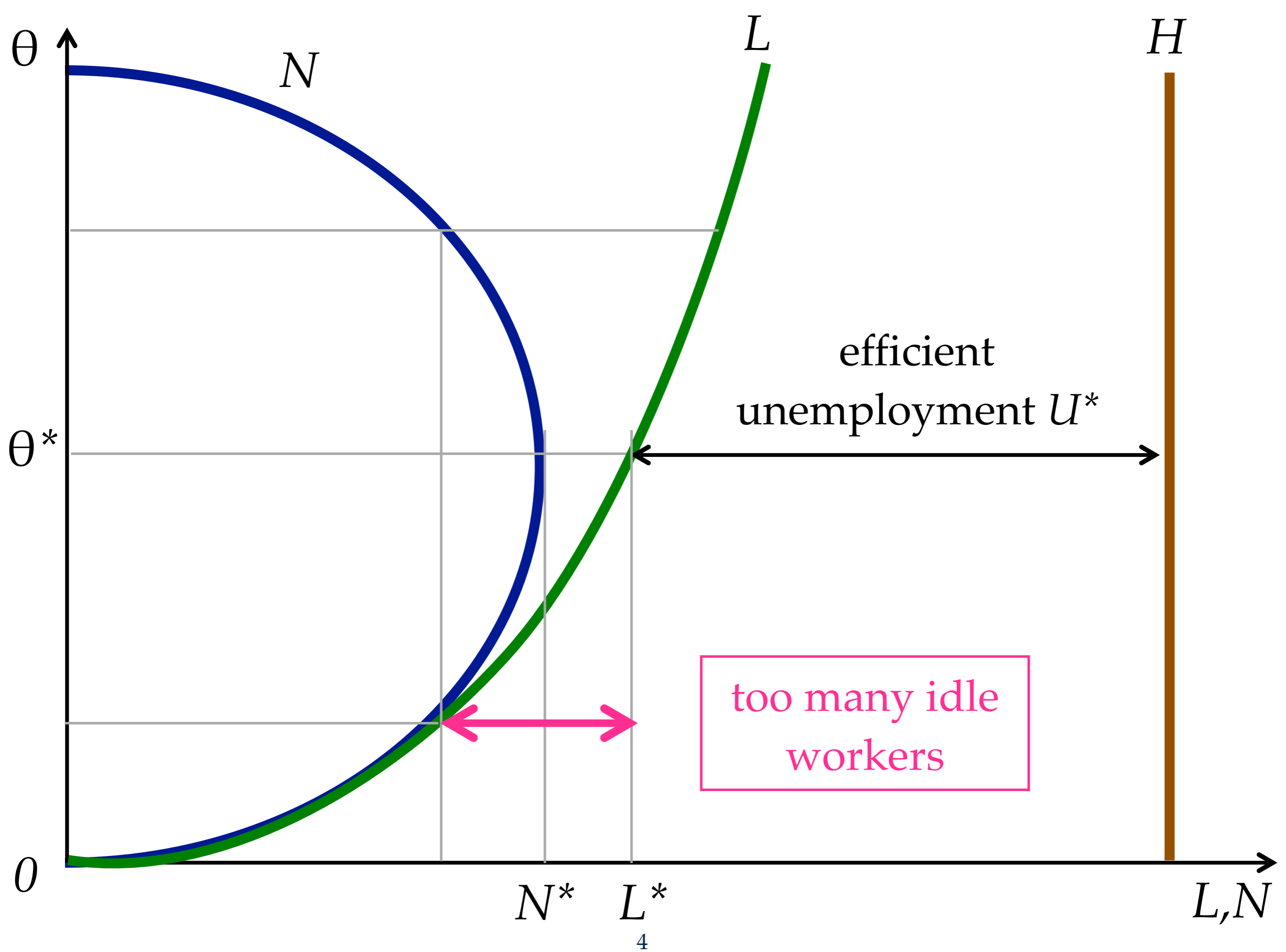
Brown University

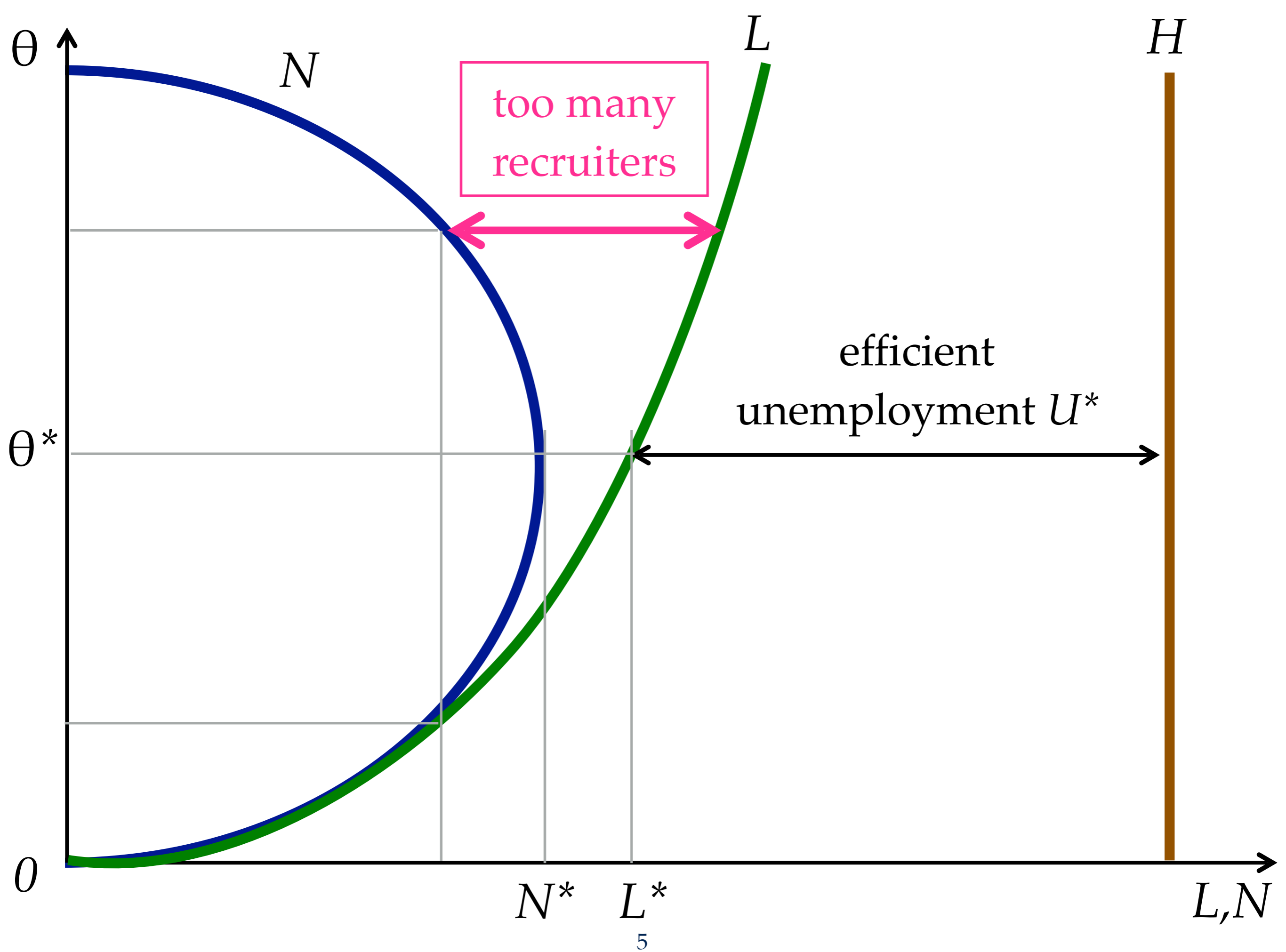
<https://www.pascalmichailat.org>

EFFICIENT UNEMPLOYMENT

- definition: the amount of unemployment **maximizing the number of producers**
 - too little unemployment means that too many workers are devoted to recruiting (see <https://perma.cc/945L-4AJ3>) instead of producing consumption goods
 - too much unemployment means that too many workers are idle instead of producing consumption goods
- in the US: efficient unemployment is likely between 4% and 6%
 - but much more work is needed to develop a complete theory of efficient unemployment



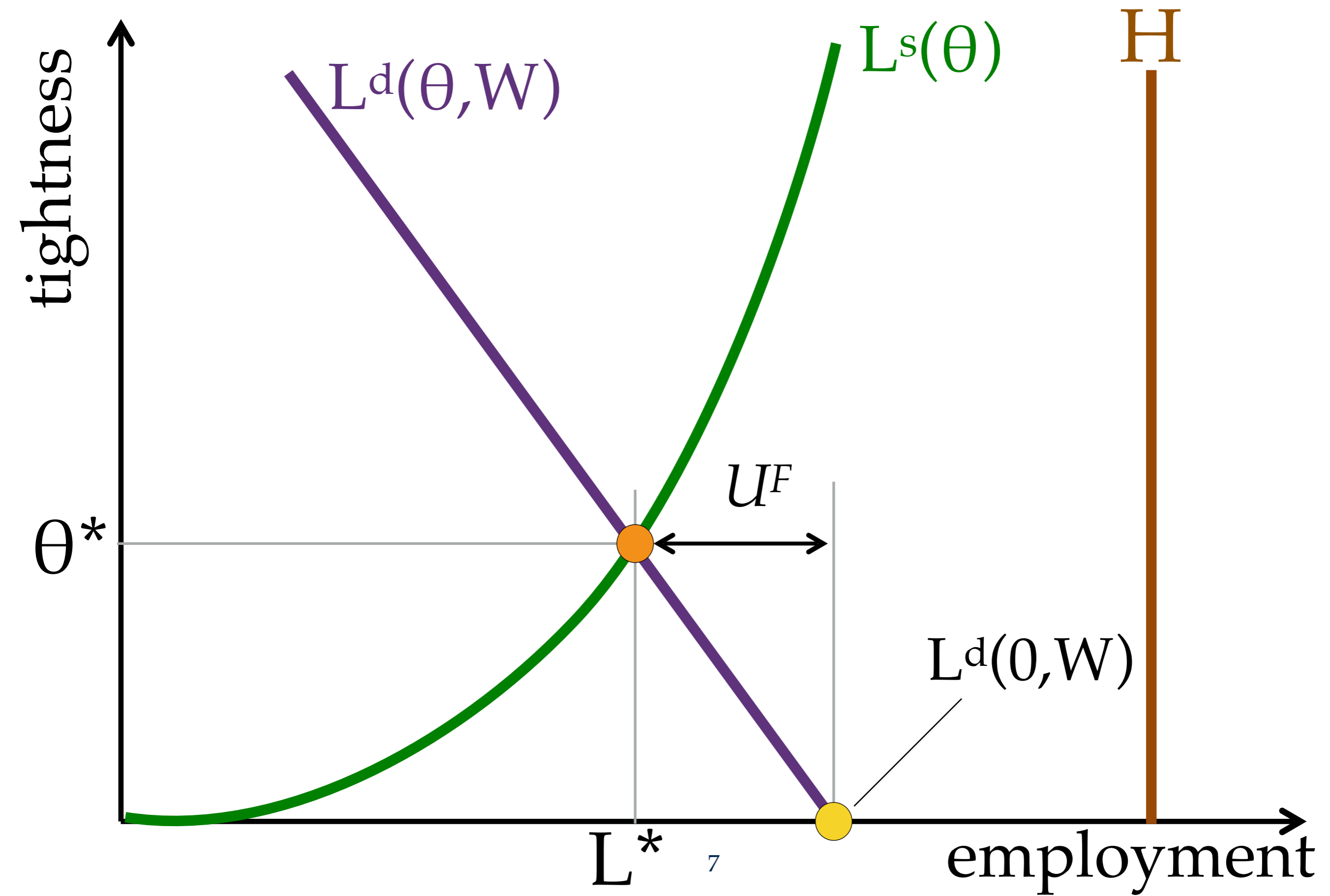




FRictionAL UNEMPLOYMENT

- definition: amount of unemployment **due to recruiting costs**
- firms would hire more workers if recruiting costs $r = 0$
 - that is, if the recruiter-producer ratio $\tau = 0$ or equivalently if $\theta = 0$
 - when $\theta = 0$, the recruiter-producer ratio $\tau(\theta) = 0$ (because $q(\theta) = \infty$), exactly as when $r=0$
 - firms would hire more workers if $r = 0$ because $L^d(r = 0) = L^d(\theta = 0, W) > L^d(\theta^* > 0, W) = L^*$
- formal definition of frictional unemployment: $U^F = L^d(r = 0) - L^*$
 - **hence: $U^F = L^d(\theta = 0, W) - L^d(\theta^* > 0, W)$**
- frictional unemployment is high in booms (because it is hard to recruit workers) and low in slumps (because it is easy to recruit workers)

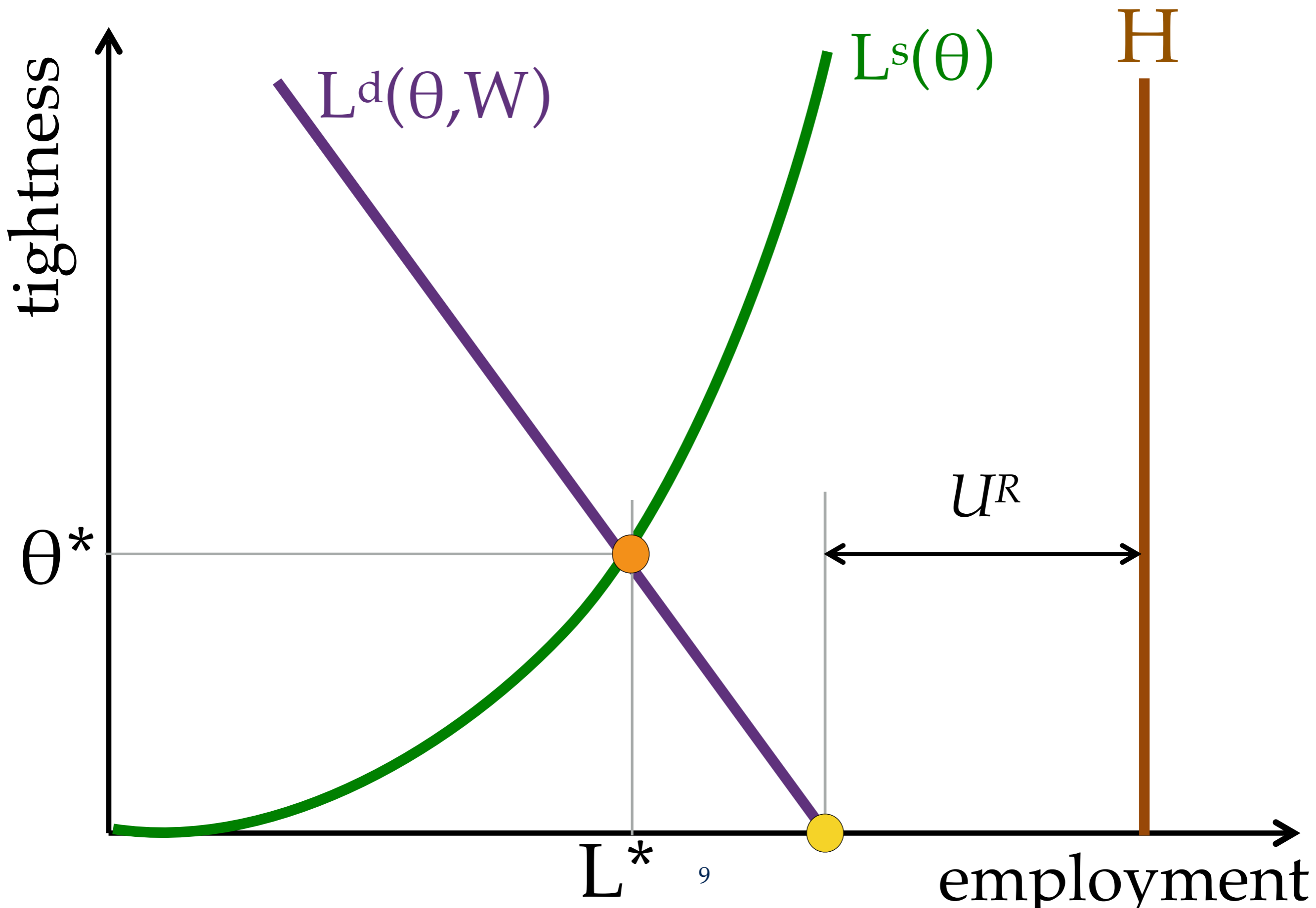
FRITIONAL UNEMPLOYMENT



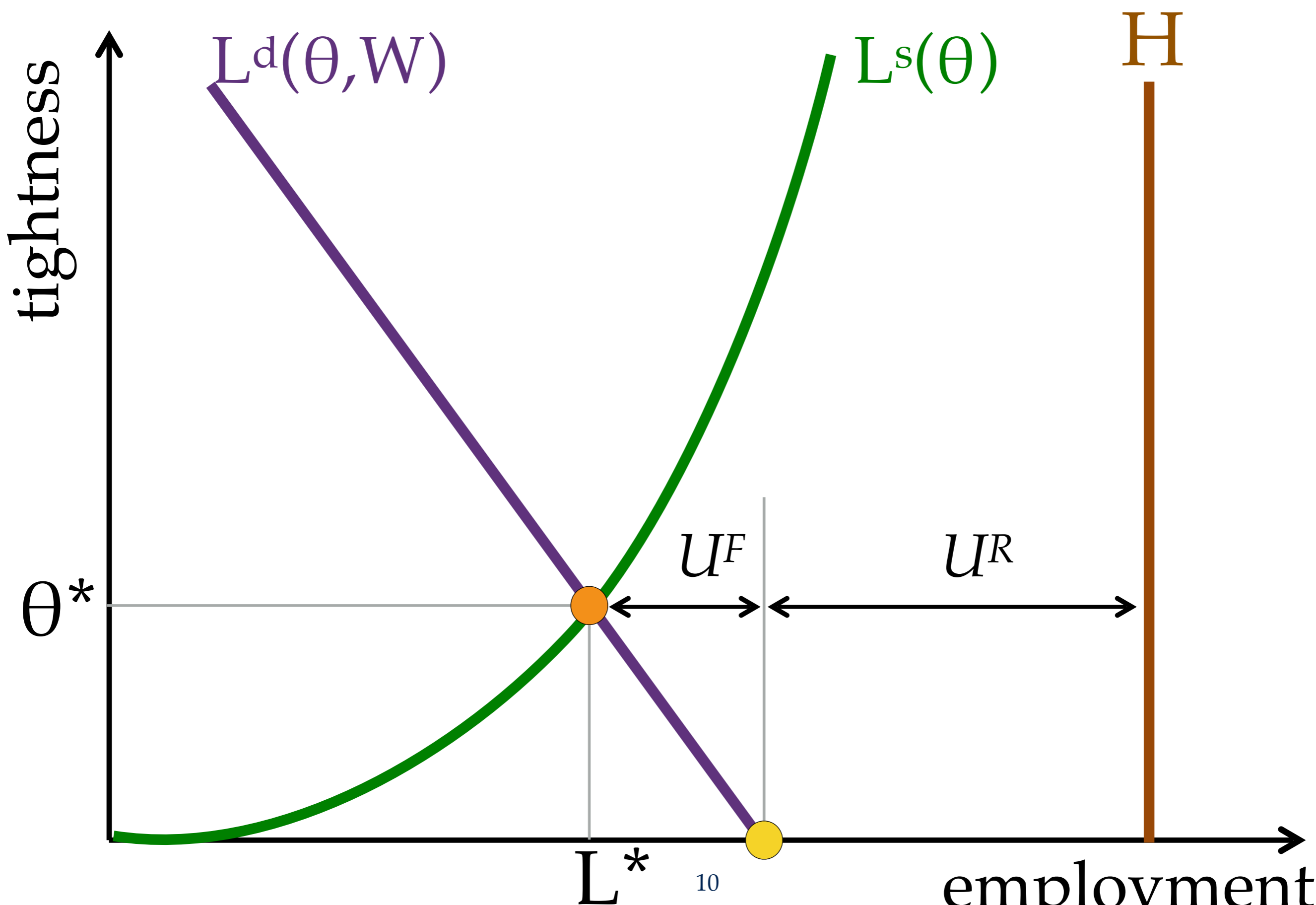
RATIONING UNEMPLOYMENT

- definition: the amount of unemployment due to a lack of jobs, irrespective of recruiting costs
- formal definition: $U^R = H - L^d(r = 0)$
 - hence: $U^R = H - L^d(\theta = 0, W)$
 - once again, when $\theta = 0$, the recruiter-producer ratio $\tau(\theta) = 0$ (because $q(\theta) = \infty$), which is the same as when $r=0$
 - (we impose $U^R \geq 0$)
- total unemployment = frictional + rationing
- rationing unemployment is high in recessions (because jobs are lacking) and low in expansions (because jobs are plentiful)

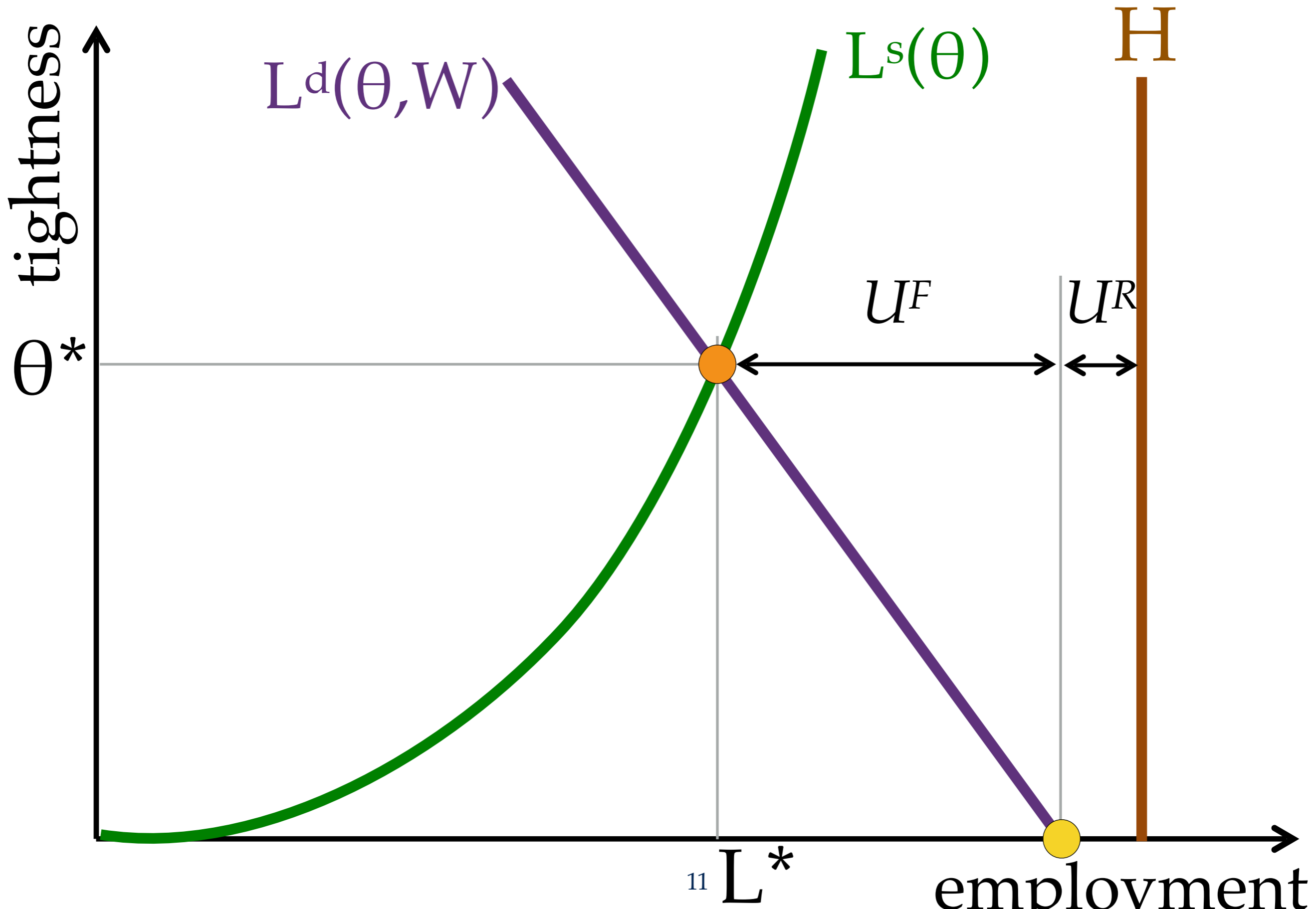
RATIONING UNEMPLOYMENT



FRictional & RATIONING UNEMPLOYMENT: BAD TIMES



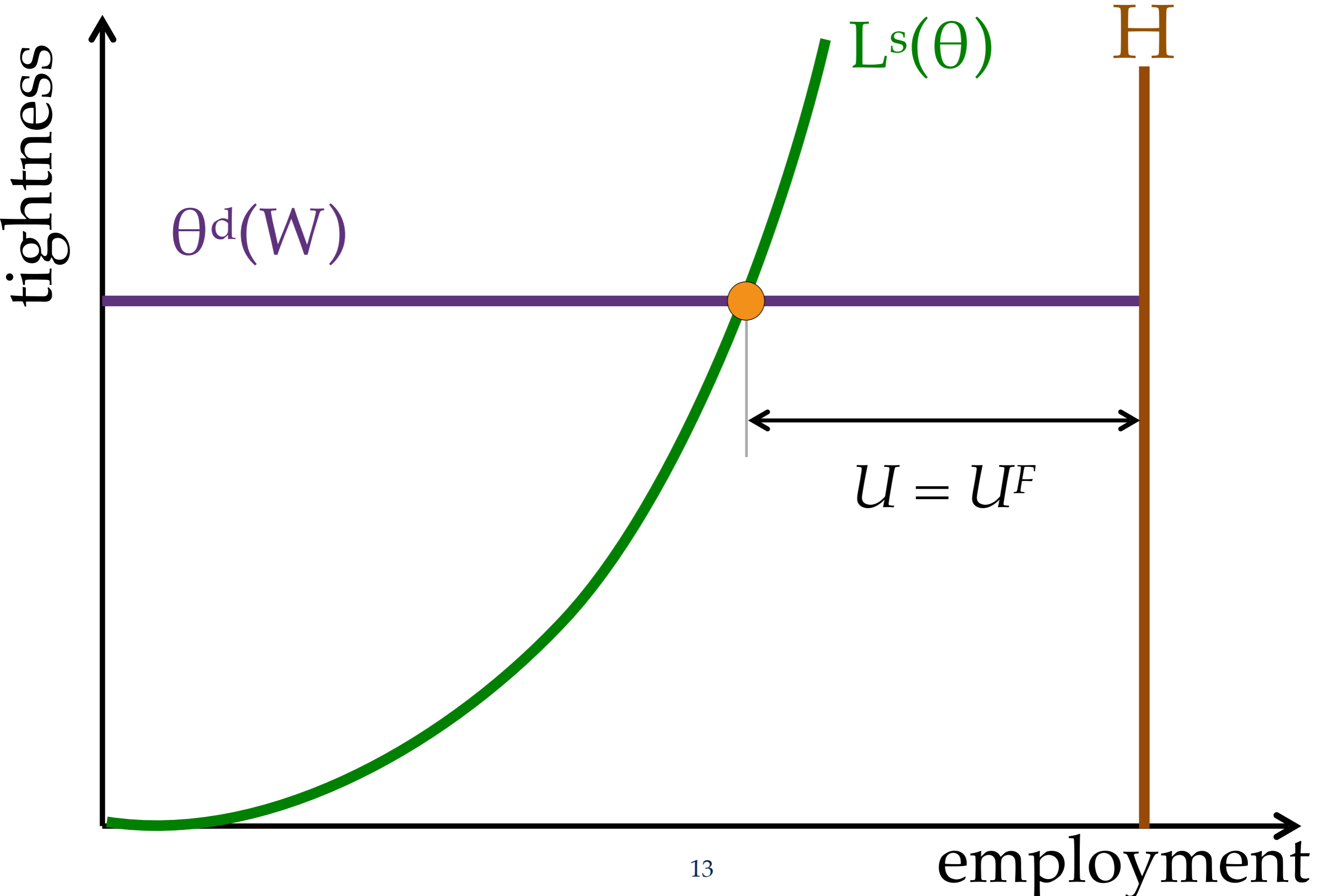
FRictional & RATIONING UNEMPLOYMENT: GOOD TIMES



LINEAR PRODUCTION FUNCTION

- consider a matching model with linear production function
 - $Y = a \times N$
- firm's profits are: $a \times N - W \times N \times [1 + \tau(\theta)]$
- to maximize profits, the derivative of profits with respect to N must be 0:
 - setting derivative to zero: $a = W \times [1 + \tau(\theta)]$
- thus the labor demand condition determines a unique tightness
 - tightness determined by labor demand: $\tau(\theta) = (a/W) - 1$
- the labor demand curve is horizontal
 - all unemployment is frictional unemployment

FRictional UNEMPLOYMENT WITH LINEAR PRODUCTION



CLASSICAL & KEYNESIAN UNEMPLOYMENT

- classical unemployment: unemployment due to high wages
 - in matching model: high wage (W) leads to low labor demand and high unemployment
- Keynesian unemployment: unemployment due to low aggregate demand
 - in matching model: low productivity (a) leads to low labor demand and high unemployment
- rationing unemployment is made of Keynesian and classical components