Unemployment, Job Creation, and Job Destruction

Measuring unemployment

A. The labor force is all non-institutionalized adults 16 and over (adult population) who are working plus those who are unemployed.

B. All non-institutionalized adults 16 and over who are not working and not looking for work are not in the labor force. This group includes retirees, homemakers, discouraged workers, and in some cases students.

C. People are considered unemployed if they are not working but are looking for work.

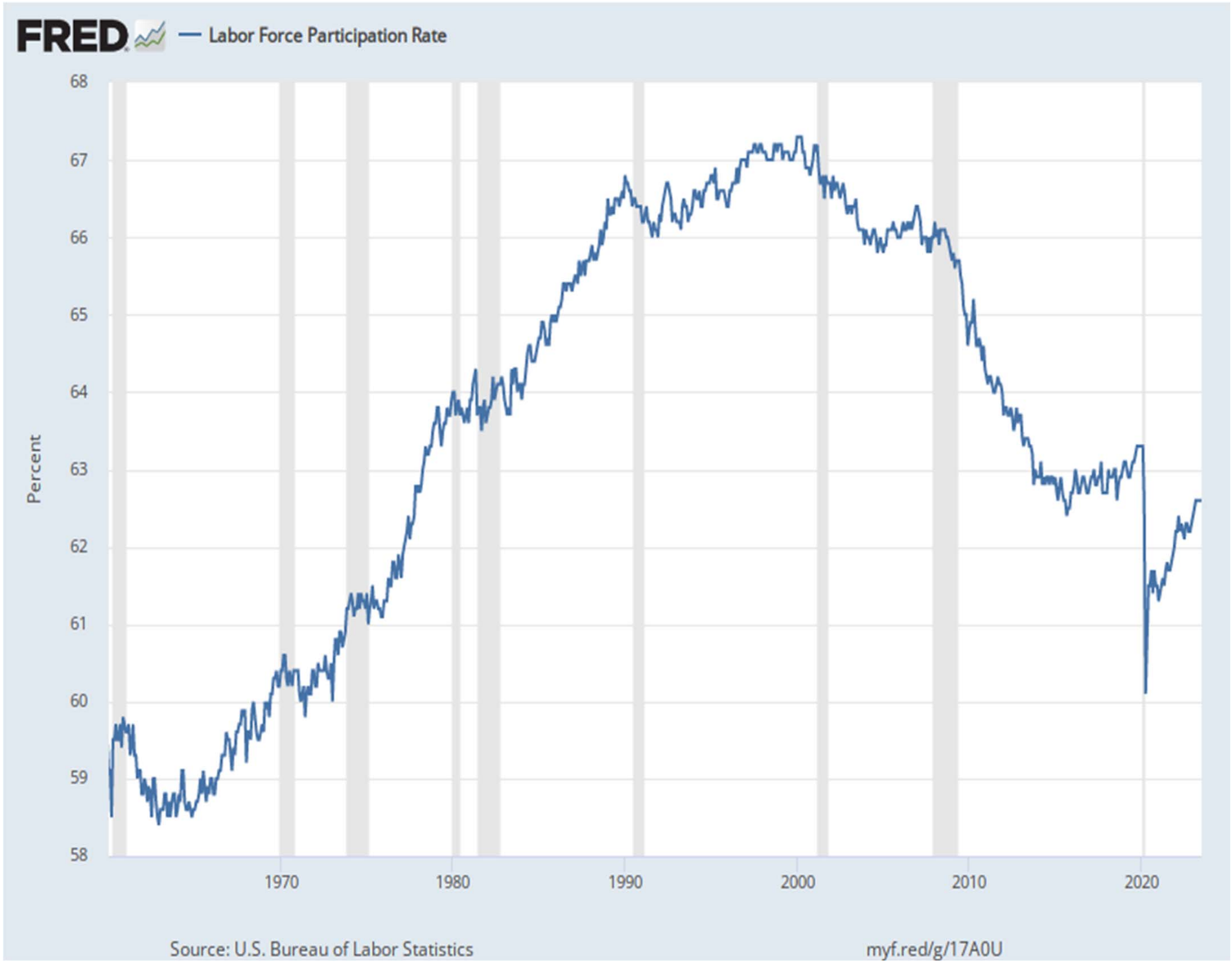
D. The unemployment rate is number of people unemployed divided by the size of the labor force multiplied by 100.

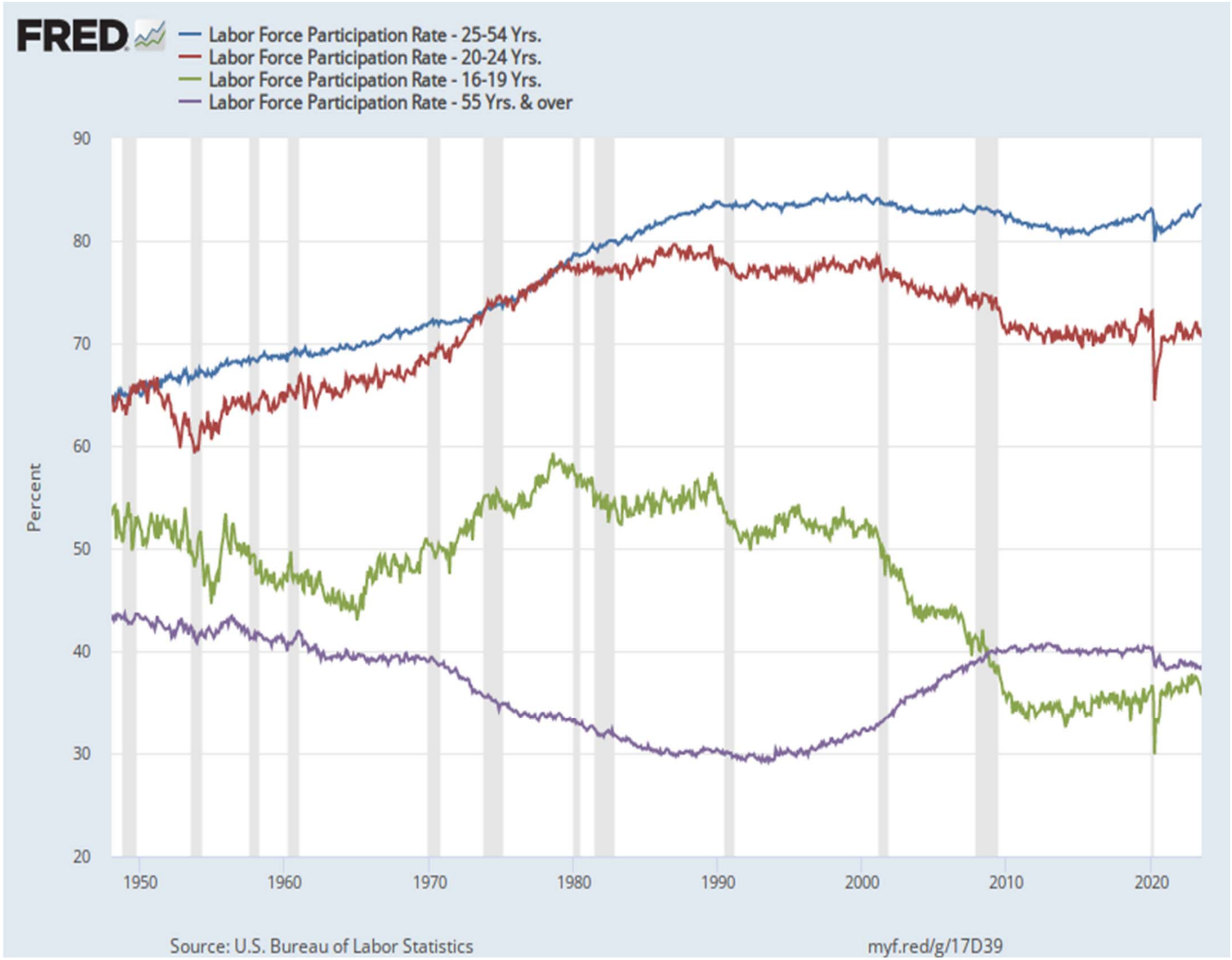
E. The natural rate of unemployment is the amount of unemployment that is always present in the economy. (About 4.5 to 5.0% in the U.S.)

F. The labor force participation rate is the percentage of non-institutionalized adults in the labor force.

G. Ex. Suppose the adult population is 200, the labor force is 140, the number of people not working but looking for work is 7, and the number of retirees is 25.

1. Unemployment rate = $(7/140)\times 100 = 5\%$.
2. Labor force participation rate = $(140/200)\times 100 = 70\%$.
3. The number of people working = $140 - 7 = 133$.
4. The number of people not working = $200 - 133 = 67$


FRED
Labor Force Participation Rate
Percent
68
67
66
65
64
63
62
61
60
59
58
1970
1980
1990
2000
2010
2020
Source: U.S. Bureau of Labor Statistics
myf.red/g/17A0U


FRED
Labor Force Participation Rate - 25-54 Yrs.
Labor Force Participation Rate - 20-24 Yrs.
Labor Force Participation Rate - 16-19 Yrs.
Labor Force Participation Rate - 55 Yrs. & over
Percent
90
80
70
60
50
40
30
20
1950
1960
1970
1980
1990
2000
2010
2020
Source: U.S. Bureau of Labor Statistics
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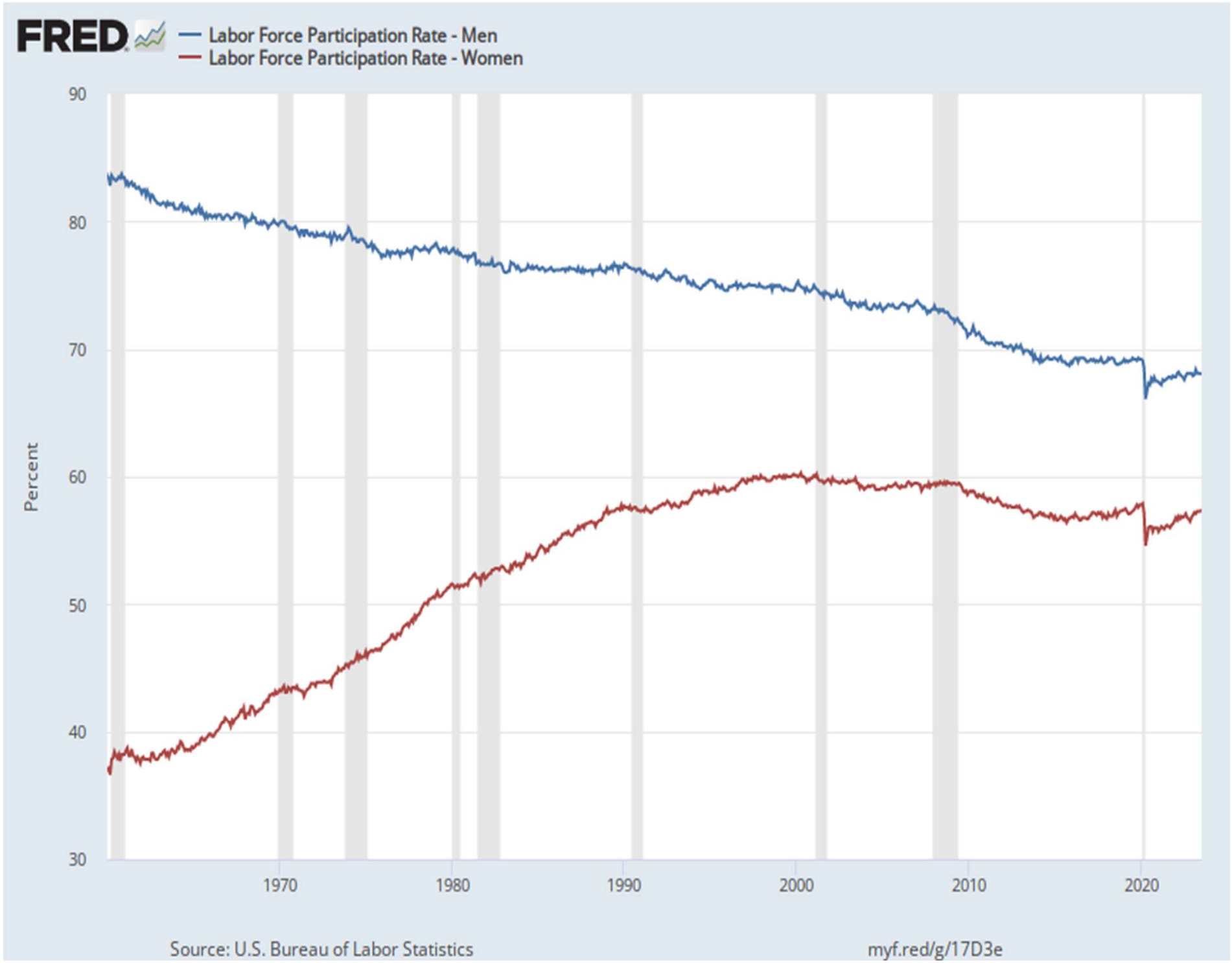
FRED
Labor Force Participation Rate - Men
Labor Force Participation Rate - Women
90
80
70
60
50
40
30
Percent
1970
1980
1990
2000
2010
2020
Source: U.S. Bureau of Labor Statistics
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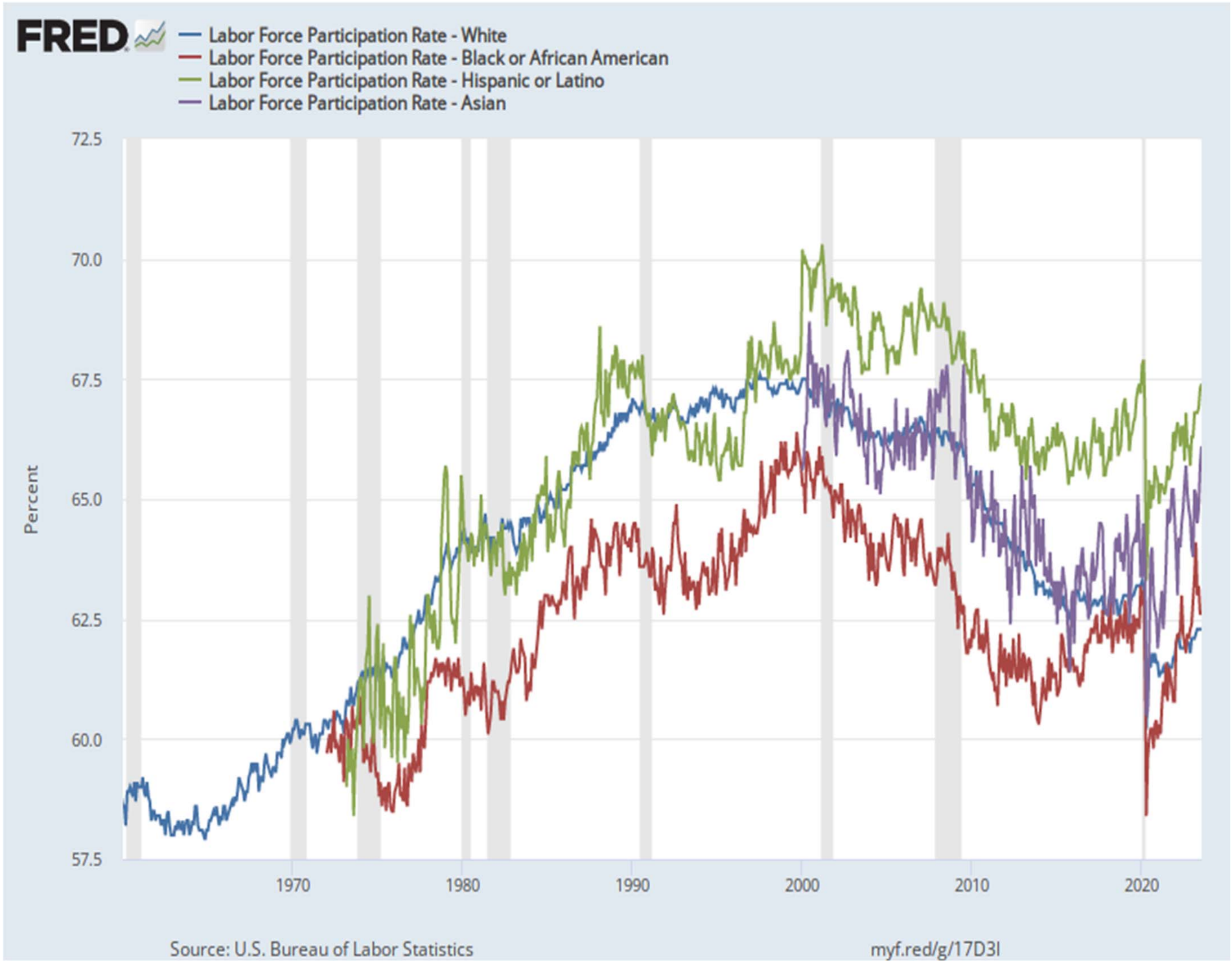

FRED
Labor Force Participation Rate - White
Labor Force Participation Rate - Black or African American
Labor Force Participation Rate - Hispanic or Latino
Labor Force Participation Rate - Asian
72.5
70.0
67.5
65.0
62.5
60.0
57.5
Percent
1970
1980
1990
2000
2010
2020
Source: U.S. Bureau of Labor Statistics
myf.red/g/17D3l

Flows Into and Out of Unemployment

A. Data on unemployment

1. In an average month, almost 3% of the labor force enters unemployment. In most months, the same percentage of people leave unemployment.
2. Given the large amount of job movement, most people do not stay unemployed for a long period of time.
3. People enter unemployment by a) losing their job or b) entering or reentering the labor force from non-work activities such as education and household production.
4. People leave unemployment by a) finding a job or b) dropping out of the labor force.

B. Definitions of unemployment flows

1. The job-finding rate (f) is

$$f = \frac{\text{Number of people who leave unemployment}}{\text{Number of people unemployed}}.$$

2. The unemployment rate (u) is

$$u = \frac{\text{Number of people unemployed}}{\text{Number of people in the labor force}}.$$

3. Thus, f×u is

$$f \times u = \frac{\text{Number of people who leave unemployment}}{\text{Number of people in the labor force}}.$$

4. The job-separation rate (s) is

$$s = \frac{\text{Number of people who enter unemployment}}{\text{Number of people in the labor force}}.$$

5. When unemployment inflow and outflow rates are equal,

$$f \times u = s,$$

we can solve for the unemployment rate:

$$u = \frac{s}{f}.$$

a. This unemployment rate is interpreted as the natural rate of unemployment (u^*).

b. Thus, the natural rate of unemployment (u^*) (i.e., the long-run value of u) depends positively on the job-separation rate (s) and negatively on the job-finding rate (f).

C. Flows into unemployment

1. Job destruction

    a. Job destruction happens when an employee is terminated, and the position is not refilled.

    b. Job destruction always occurs but has its largest bursts around recessions when firms are doing badly.

2. Job loss without destruction

    a. This occurs when a worker loses a job, but the employer does not eliminate the position.

    b. Many of these job losses involve temporary jobs, including seasonal employment.

3. Personal transactions
    a. Personal transactions include job quitters, and people who enter the labor force.
    b. Job quitters comprise little of the newly unemployed.
    c. Almost half of the flows into unemployment come from non-work activities.

D. Flows out of unemployment
    1. Statistics
        a. About 2/3 of the flows out of unemployment end with a successful job search.
        b. About 1/3 of the flows out of unemployment end with a decision to leave the labor force.
        c. In normal times, most people find a job within two months.
        d. On average, job vacancies last only one to two weeks.

2. The job-finding rate depends on
    a. the availability of jobs.
    b. amount of variation in wages and working condition in the job market.
    c. the cost of waiting until a better offer is received.
    d. how long the person is expected to last at the job.

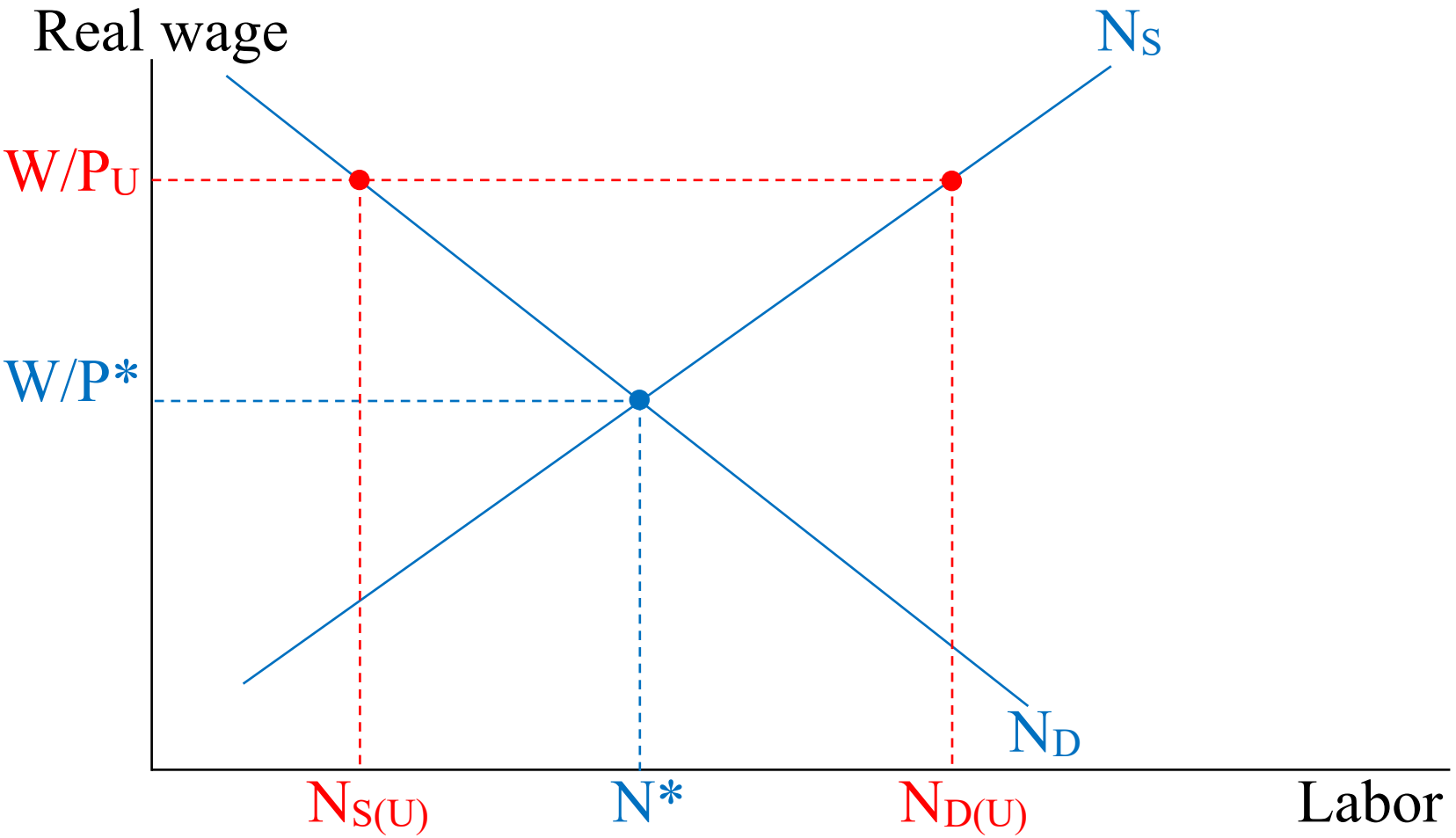
The Natural Rate of Unemployment

A. The natural rate of unemployment (u*) consists of three types of unemployment.
    1. Frictional unemployment is unemployment due to the time to match workers with jobs.
    2. Structural unemployment is unemployment due to a mismatch of skills or geographic location.
    3. Seasonal unemployment is unemployment caused by seasonal shifts in labor demand and supply.

B. A high natural rate of unemployment occurs in economies with
    1. high rates of personal turnover.
    2. high job separation rates (s) and low job finding rates (f).
    3. high rates of job creation and destruction.

C. Factors that raise the natural rate of unemployment (u*)

1. Union wage premium is an above market wage (W/P_U) that increases labor supply (N_S) and decreases labor demand (N_D).



Unemployment = $N_{D(U)} - N_{S(U)}$

2. Efficiency wages

   a. This theory says firms should pay employees an above market-clearing wage ($W/P_E > W/P^*$) so that the threat of separation is an effective tool to induce additional productivity.

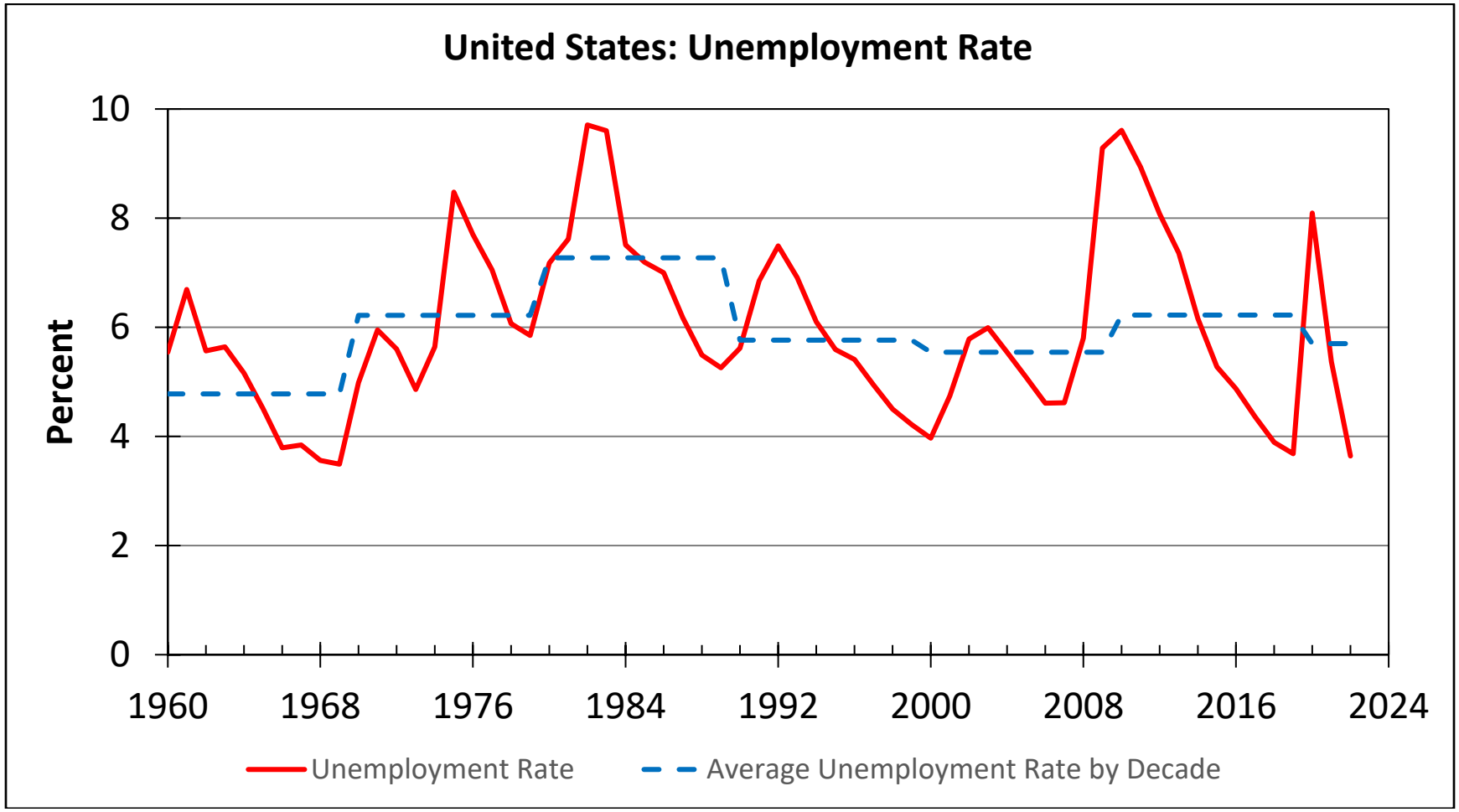
   b. In markets where this theory applies, N_S rises and N_D falls which pushes up u*. Efficiency wages have the same impact on the labor market as the union wage premium.

3. Minimum wage laws will raise u* if the new minimum wage is above the market-clearing wage ($W/P_M > W/P^*$) by increasing N_S and decreasing N_D. Minimum wage laws have the same impact on the labor market as the union wage premium.

4. Unemployment insurance provides a subsidy for a job search, which encourages search strategies with a lower job finding rate.

D. The natural rate of unemployment tends to vary over time due to changing labor market conditions.

1. Unemployment in the United States



a. During the 1970s and 1980s, the natural rate of unemployment rose.

b. The natural rate of unemployment fell beginning in the 1990s.

c. Reasons for the decline beginning in the 1990s.

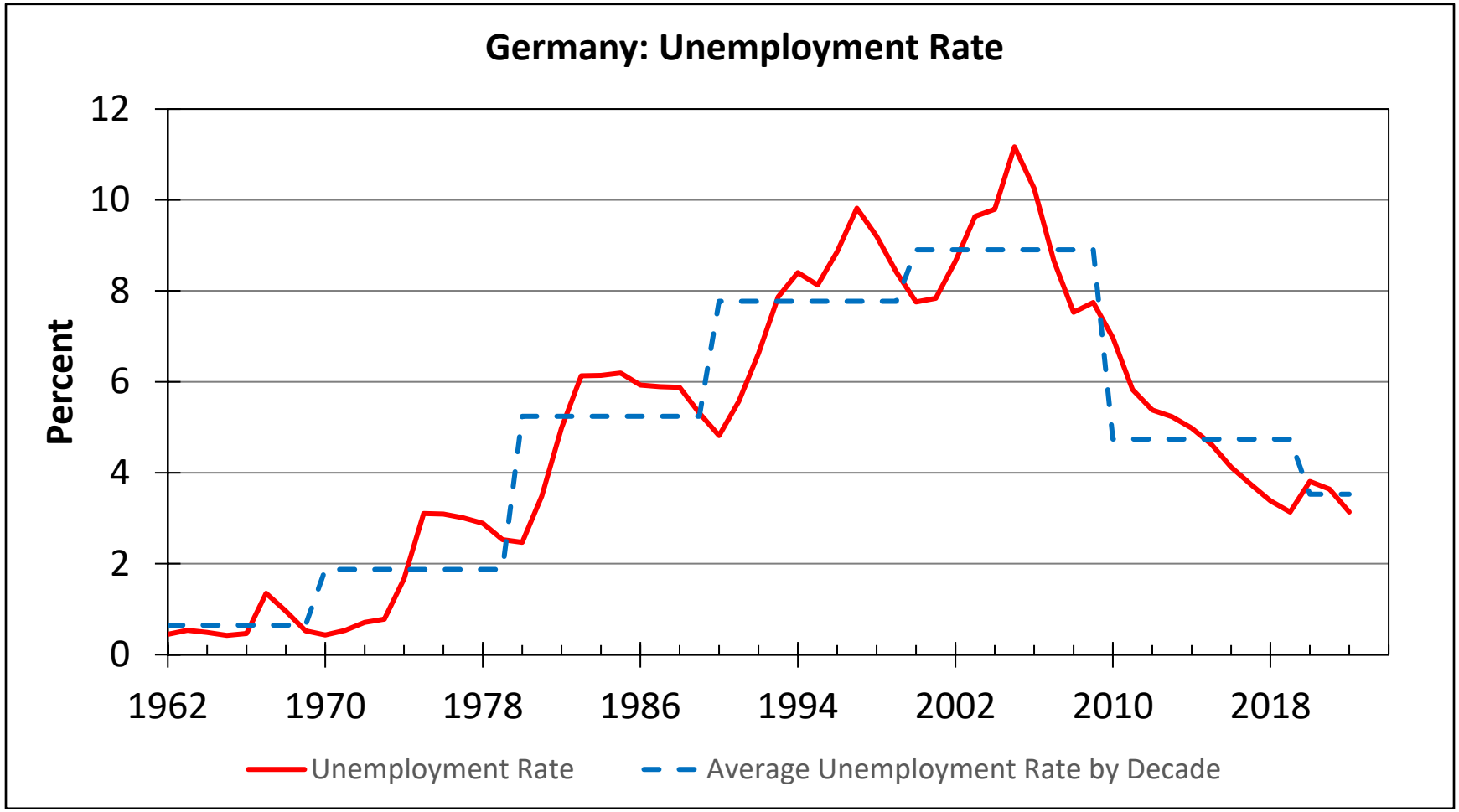
    i. Lower job turnover rates (older labor force).

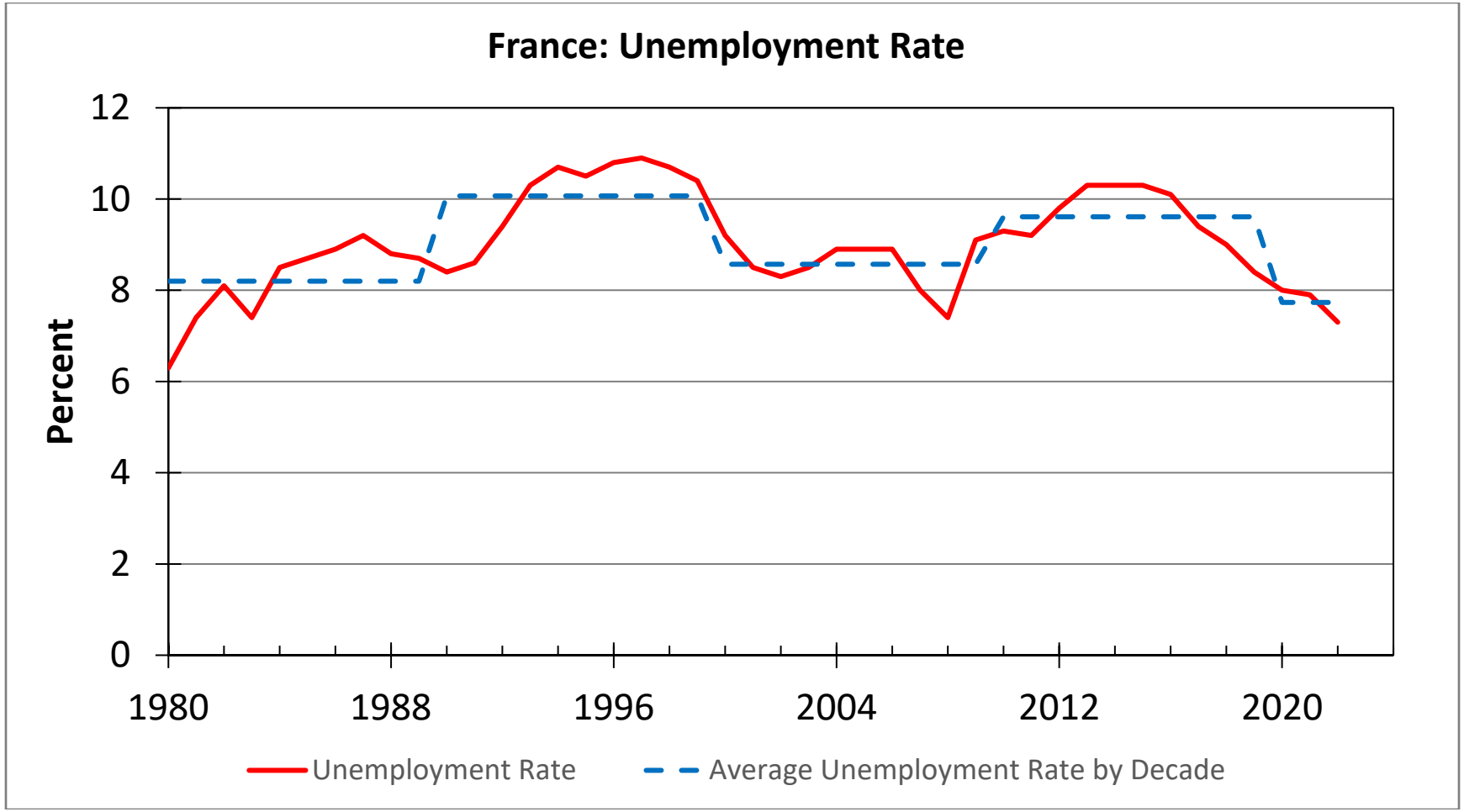
    ii. A decline in union membership.

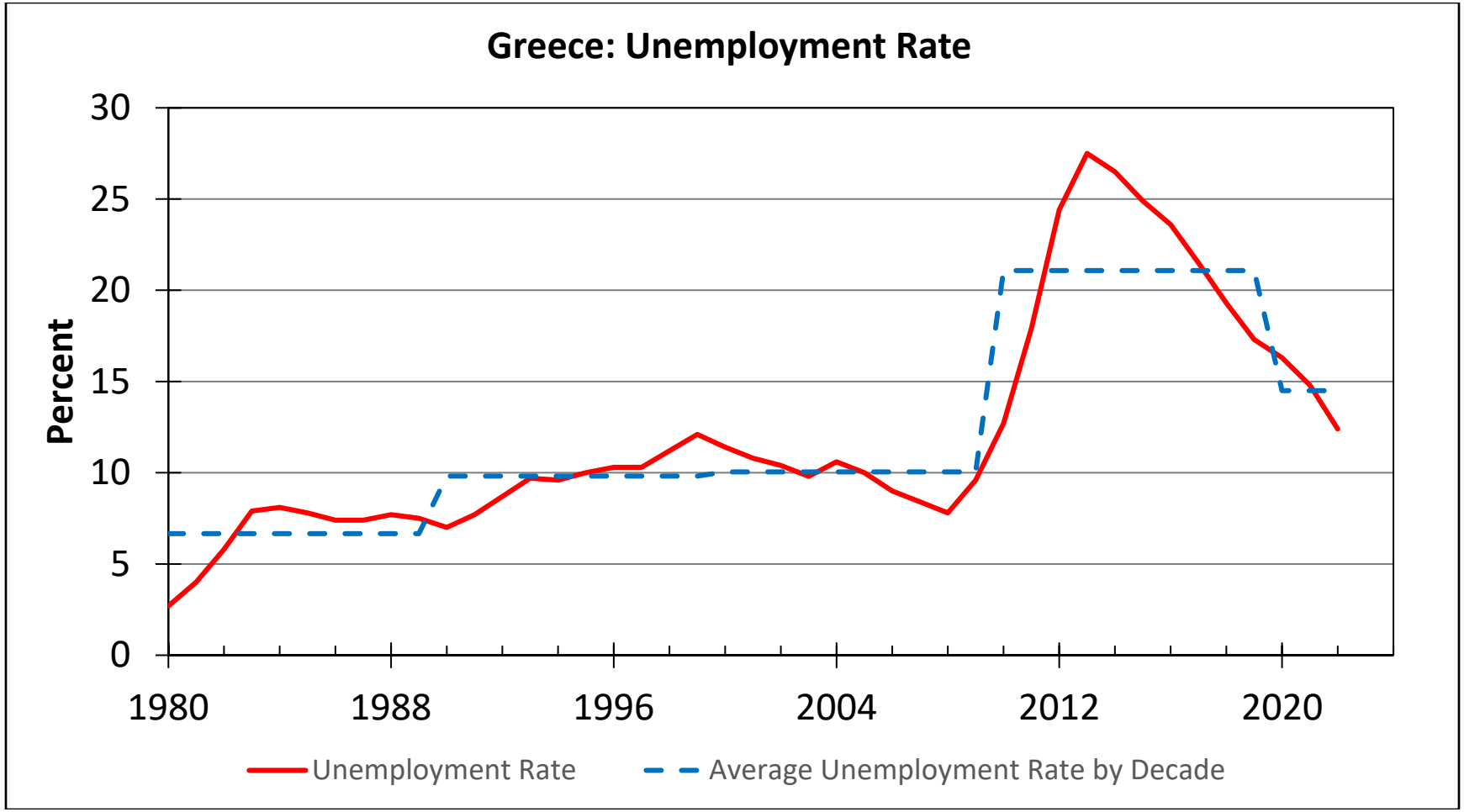
    iii. A fall in the real minimum wage rate.

2. Unemployment In Europe

a. The natural rate of unemployment is higher in most European countries.




France: Unemployment Rate
Percent
12
10
8
6
4
2
0
1980
1988
1996
2004
2012
2020
Unemployment Rate
Average Unemployment Rate by Decade



b. Reasons why the unemployment rate is higher in Europe.

   i. Unemployment benefits are larger and last longer.

   ii. The real minimum wage rate is higher

   iii. A greater percentage of workers participate in unions.

Unemployment over the Business Cycle

A. Changes in unemployment flows

1. Job destruction rises during recessions. (see Figure 3.4)
2. Inflows into unemployment remain strong after a burst of job destruction.
3. The unemployment rate remains high for a few years after a burst of job destruction as people flow in and out of unemployment as they search for a job with a good fit.

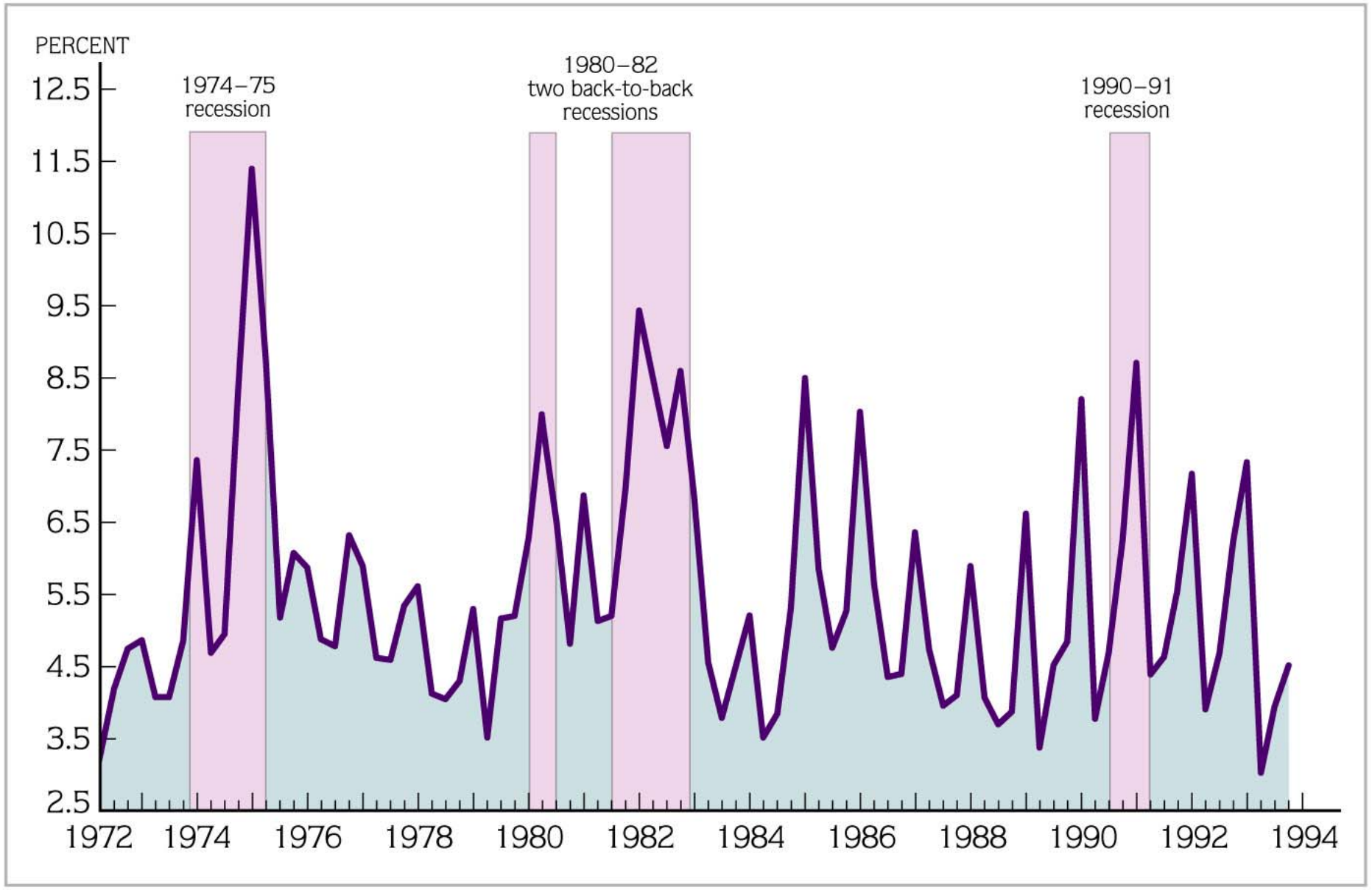


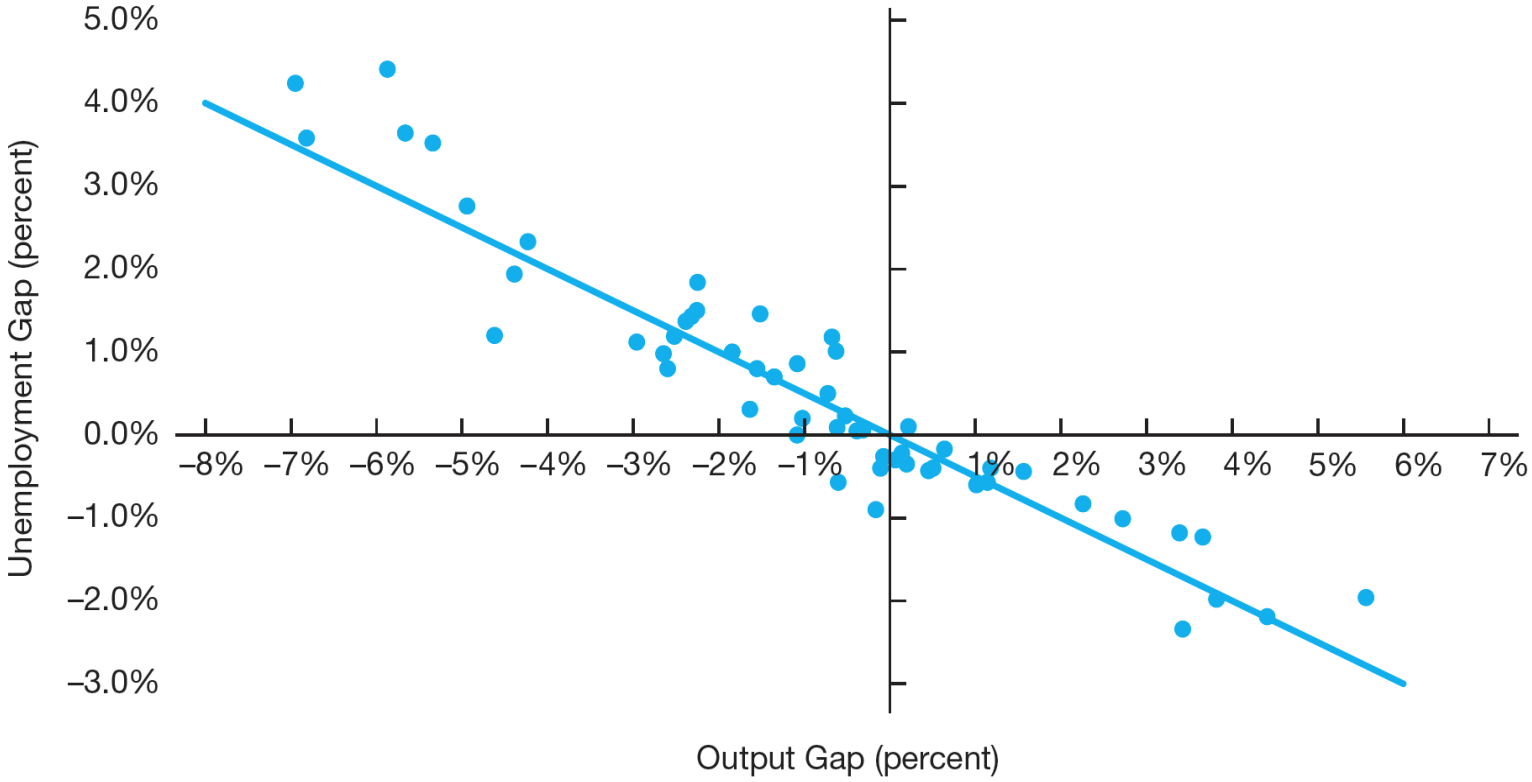
FIGURE 3.4 Job Destruction Rate in Manufacturing

B. Okun's Law

1. This law says that for every percentage point the unemployment rate (u) is above its natural rate (u*), real GDP (Y) is 2% below its potential (Y*):

$$(Y - Y^*)/Y^* = -2 \times (u - u^*).$$

2. Okun's Law: U.S. Data from 1960-2014



3. Ex. Suppose the unemployment rate is 5.6% and the natural rate of unemployment is 5.0%. Calculate the output gap?

$u = 0.056$ and $u^* = 0.050$

$$(Y - Y^*)/Y^* = -2 \times (u - u^*)$$

$$(Y - Y^*)/Y^* = -2 \times (0.056 - 0.050)$$

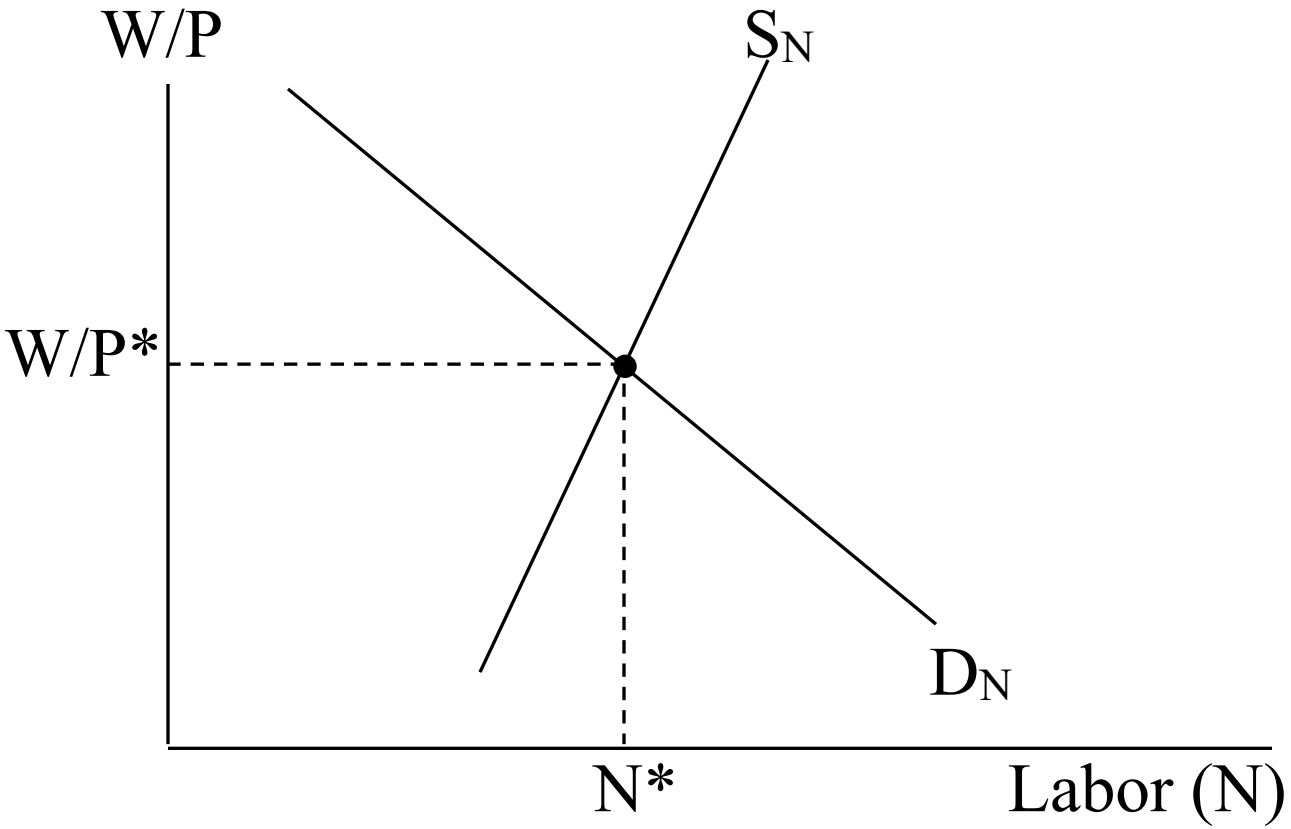
$$(Y - Y^*)/Y^* = -2 \times (0.006)$$

$$(Y - Y^*)/Y^* = -0.012$$

Real GDP is 1.2% below its potential.

Unemployment in a Demand and Supply Framework

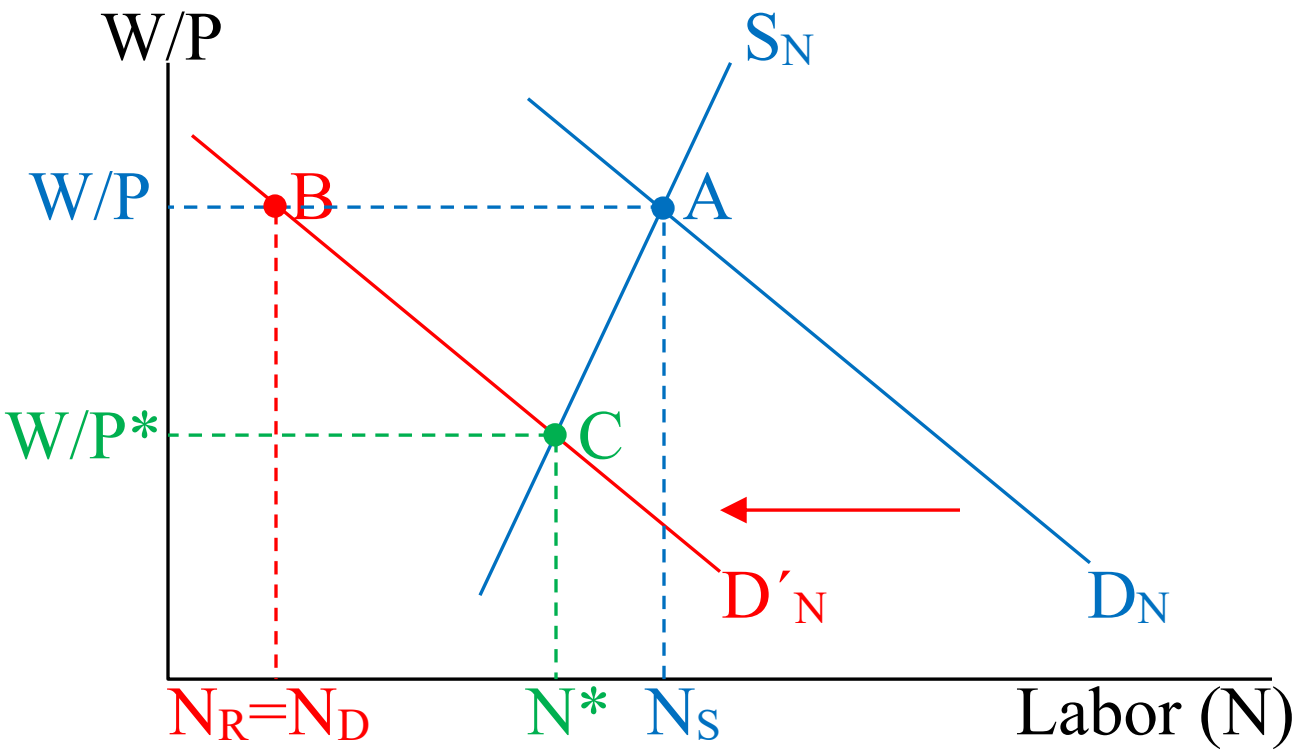
A. Standard principles of economics says there should be no unemployment during a recession, because labor demand (N_D) equals labor supply (N_S) at the equilibrium real wage rate (W/P^*) That is, $N_D = N_S = N^*$.



B. In recessions, however, the actual level of employment (N_R) is less than N^* and N_S. That is, $N_D = N_R < N^* < N_S$.

C. Thus, the number of unemployed equals $N_S - N_D$ in a recession.

D. One potential reason $N_R < N^*$ during a recession is that W/P is above W/P^*.



D. When there is unemployment, employers and workers have incentives to expand employment.

   1. Employers can hire workers for a real wage which is less than MP_L.

   2. Unemployed workers prefer to work even at a wage slightly lower than the prevailing real wage.

E. Empirical evidence suggests these incentives take years to operate, so high unemployment can persist for some time.