

# Chapter 13

## Unemployment

### 13.1 History of Unemployment in the New Zealand

- **NOTE: Only sections 13.2 and 13.8 are compulsory reading for the exam.**
- Unemployment rate over time. Recap of definition & issue of discouraged and underemployed workers.
- Differences in unemployment by education level, age, ethnic background, gender, industry of employment, duration of unemployment (short- versus long-run).
  - See Statistics New Zealand (2008), Labour Market Statistics 2007, Wellington.
- Four ways in which workers can end up unemployed:
  - Job losers; job leavers; reentrants; new entrants.

## 13.2 Types of Unemployment

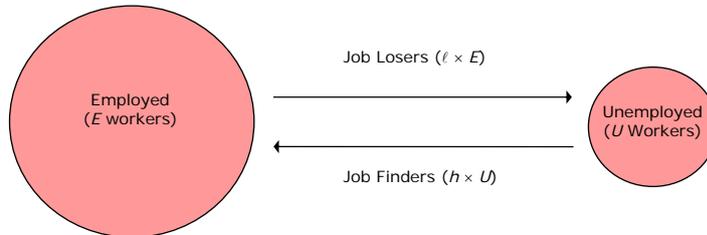
- Even a well-functioning competitive economy experiences frictional unemployment because some workers will unavoidably be “in between” jobs. Workers & firms need time to locate each other.
  - Not seen as much of a problem. Short-term. It is ‘productive’.
- Seasonal unemployment.
  - Usually predictable. Not seen as a major problem.
- Structural unemployment arises when there is an imbalance between the supply of workers and the demand for workers or a mismatch between the skills workers are supplying and firms are demanding.
  - Seen as a major problem. Requires government training programs etc.
- Cyclical unemployment due to lack of aggregate demand during business cycle downturns. Also called ‘demand-deficient unemployment’ or ‘Keynesian unemployment’.

## 13.3 The Steady-State Rate of Unemployment

- The steady-state rate of unemployment (also called the ‘natural rate of unemployment’) depends on the transition probabilities between employment and unemployment ( $l$  &  $h$ ).
  - In the steady state (long-run equilibrium):  $lE = hU$  (13.1)
  - Labour force:  $LF = E + U$
  - This gives:  $l(LF - U) = hU$  (13.2)
  - And finally:  $U/LF = l / (l+h)$  (13.3)

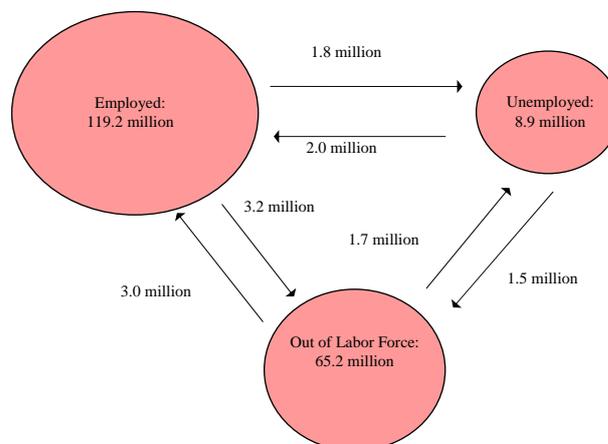
Add flows in and out of the LF to get Figure 13.7.

## Figure 13.6: Flows Between Employment and Unemployment



Suppose a person is either working or unemployed. At any point in time, some workers lose their jobs and unemployed workers find jobs. If the probability of losing a job equals  $\ell$ , there are  $\ell \times E$  job losers. If the probability of finding a job equals  $h$ , there are  $h \times U$  job finders. In long-run equilibrium:  $\ell E = hU$  (13.1)

## Figure 13.7: Dynamic Flows in the U.S. Labor Market, May 1993



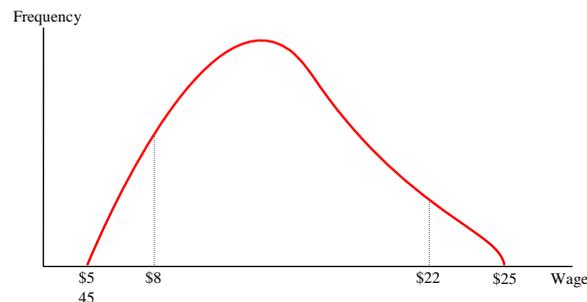
## Unemployment Duration

- Although most spells of unemployment do not last very long, most weeks of unemployment can be attributed to workers who are in very long spells.
  - This varies over time: See long-term unemployed as percentage of total unemployed in New Zealand (*Labour Market Statistics 2007*, Table 5.05, p. 82):
    - 1992: 43.8
    - 1993: 49.9
    - 1995: 44.1
    - 2000: 34.5
    - 2006: 18.1
    - 2007: 15.6

## 13.4 Job Search

- Job search theory is a major theory that tries to explain unemployment in competitive labour markets. It explains frictional or search unemployment due to imperfect information on part of the workers.
- Stigler: “Search unemployment is a human capital investment in information”.
- A simple model of job search:
  - Assume only unemployed people search.
  - Each unemployed knows the shape of his/her wage offer distribution (Figure 13.8).
  - Each unemployed faces a trade-off: A longer search likely to result in a better wage offer, but also higher opportunity costs.

## Figure 13.8: The Wage Offer Distribution



The wage offer distribution gives the frequency distribution of potential job offers. A given worker can get a job paying anywhere from \$5 to \$25 per hour.

## Job search ctd.

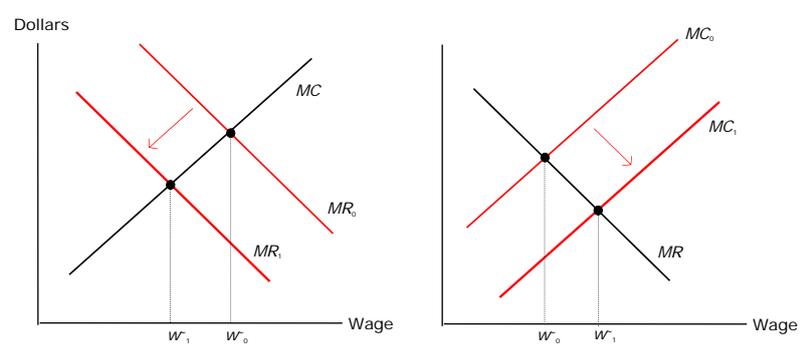
- Nonsequential search. Not optimal.
- Sequential search.
- Asking wage.
  - The asking wage makes the worker indifferent between continuing his search activities and accepting the job offer at hand.
  - A worker's asking wage responds to changes in the benefits and costs of search activities.
    - An increase in the benefits from search raises the asking wage and lengthens the duration of the unemployment spell.
    - An increase in search costs reduces the asking wage and shortens the duration of the unemployment spell.

### Figure 13.9: The Determination of the Asking Wage



The marginal revenue curve gives the gain from an additional search. It is downward sloping because the better the offer at hand, the less there is to gain from an additional search. The marginal cost curve gives the cost of an additional search. It is upward sloping because the better the job offer at hand, the greater the opportunity cost of an additional search. The asking wage equates the marginal revenue and the marginal cost of search.

### Figure 13.10: Discount Rates, Unemployment Insurance, and the Asking Wage



(a) Increase in discount rates

(b) Increase in unemployment benefits

## Job search ctd.

- Asking wage not constant over time. It falls the longer the worker has been searching (liquidity constraint).
- Research so far indicates that use of the Internet for job search does not seem to have increased the speed at which workers find jobs.

## 13.5 Unemployment Benefits & Assistance

- US situation: Unemployment insurance lengthens the duration of unemployment spells and increases the probability that workers are laid off temporarily.
- NZ unemployment benefits: See New Zealand Official Yearbook 2006, chapters 7 and 14.
- Replacement ratio: The proportion of weekly earnings replaced by unemployment benefit. Higher for low income earners. It also varies a lot by country.

## 13.6 The Intertemporal Substitution Hypothesis

- Search theory is an important explanation for voluntary frictional unemployment. But how do mainstream conservative economists explain large scale unemployment during recessions?
- The intertemporal substitution hypothesis argues that the huge shifts in labour supply observed over the business cycle may be the result of workers reallocating their time so as to purchase leisure when it is cheap (that is, during recessions).
  - Two key assumptions: 1. The real wage is procyclical and 2. labour supply responds to shifts in the real wage. Both are controversial!
- The hypothesis was already covered in chapter 3 of Borjas (section 3.1). Page 510/11 recaps and extends the earlier material.

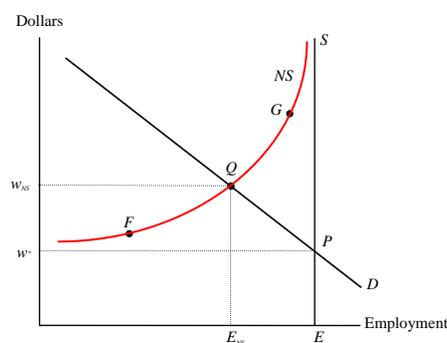
## 13.7 The Sectoral Shifts Hypothesis

- This hypothesis tries to explain structural long-term unemployment in a competitive market.
- The sectoral shifts hypothesis argues that structural unemployment arises because the skills of workers cannot be easily transferred across sectors.
- The workers laid off from declining industries have to acquire new skills before they can find jobs in growing industries.

## 13.8 Efficiency Wages

- Efficiency wages arise when it is difficult to monitor workers' output.
- The above-market efficiency wage generates involuntary unemployment. This unemployment keeps the workers receiving efficiency wages in line (it deters shirking).
- Figure 13.13 explains this:
  - Firms offer an efficiency wage that prevents shirking.
  - When unemployment is high, firms only have to pay a low efficiency wage to prevent shirking.
  - When unemployment is low, firms have to pay a high efficiency wage to prevent shirking.
  - This results in an upward-sloping no-shirking supply curve: This curve gives the number of nonshirking workers that firms can hire at each wage.
  - The differences between the no-shirking supply curve and the perfectly inelastic supply curve give the number of workers who are unemployed.

### Figure 13.13: The Determination of the Efficiency Wage

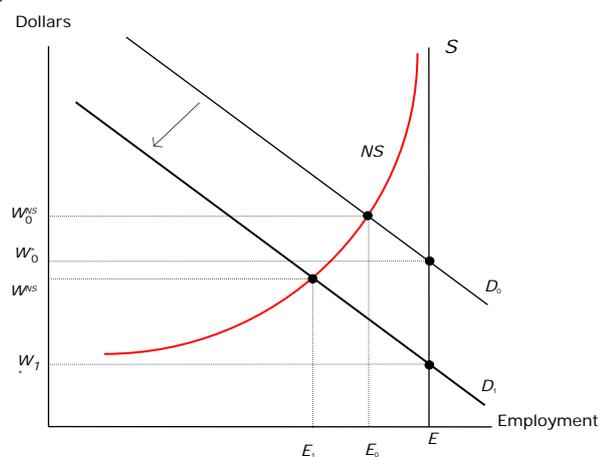


If shirking is not a problem, the market clears at wage  $w^*$  (where supply  $S$  equals demand  $D$ ). If monitoring is expensive, the threat of unemployment can keep workers in line. If unemployment is high (point  $F$ ), firms can attract workers who will not shirk at a very low wage. If unemployment is low (point  $G$ ), firms must pay a very high wage to ensure that workers do not shirk. The efficiency wage  $w_{NS}$  is given by the intersection of the no-shirking supply curve ( $NS$ ) and the demand curve (point  $Q$ ).

## Efficiency wages ctd.

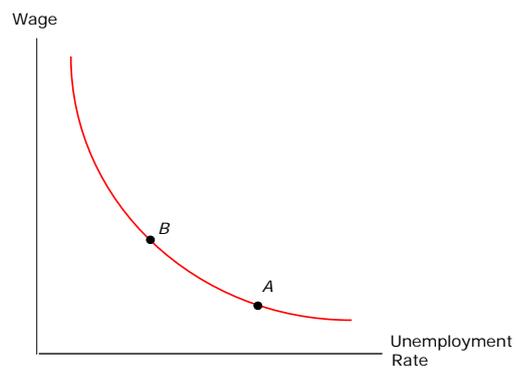
- Properties of equilibrium in Figure 13.13 (point Q):
  - No market pressure to reduce the efficiency wage to the competitive wage level.
  - The workers hired do not shirk.
  - There is involuntary unemployment (distance  $E-E_{NS}$ ).
    - This unemployment is unproductive from the worker's point of view but productive from the firm's point of view.
- The efficiency wage model can also explain why wages tend to be sticky over the business cycle (Figure 13.14).
- The efficiency wage model also seems to be able to explain the observed **wage curve** (Figure 13.15). The wage curve contradicts competitive labour market theory.

### Figure 13.14: The Impact of an Economic Contraction on the Efficiency Wage



A fall in output demand shifts the labour demand curve from  $D_0$  to  $D_1$ . The competitive wage falls from  $w_0^*$  to  $w_1^*$ . If firms pay an efficiency wage, the contraction in demand also reduces the efficiency wage but by a smaller amount. The efficiency wage is less responsive to demand fluctuations compared to the competitive wage.

**Figure 13.15: The Wage Curve: The Relation Between Wage Levels and Unemployment Across Regions**



Geographic regions (such as B) that offer higher wage rates also tend to have lower unemployment rates. When there is low unemployment, firms have to offer high efficiency wages to prevent shirking (& vice versa).

**End of Chapter 13**